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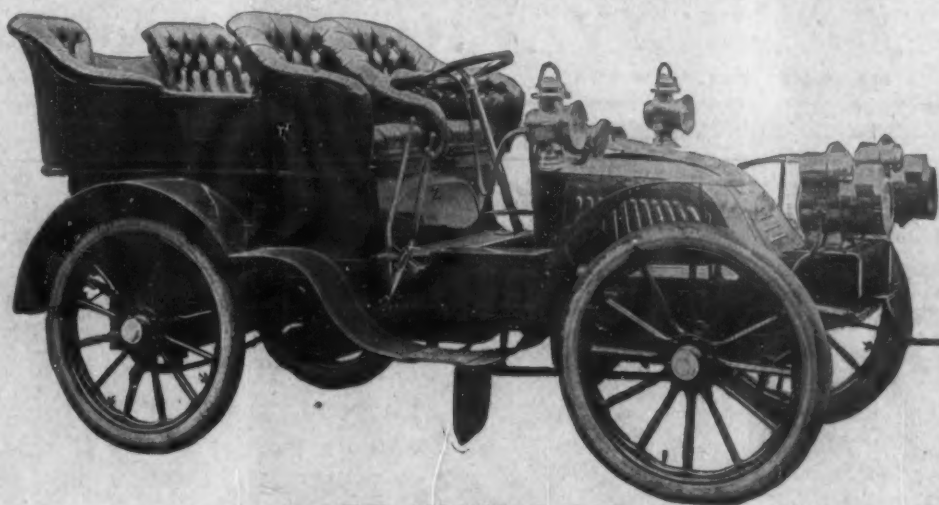
Motor Age

Vol. II. No. 17

OCTOBER 23, 1902

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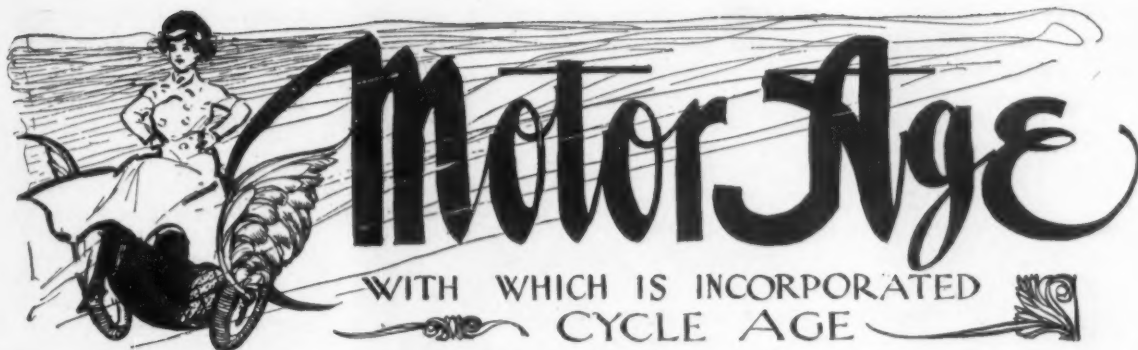
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Motor Age

WITH WHICH IS INCORPORATED
CYCLE AGE

VOL. II. No. 17.

CHICAGO, OCTOBER 24, 1902.

\$2.00 PER YEAR

ENDURANCE RUN DETAILS NOT COMPLETE.

New York, Oct. 22.—(Special telegram)—The contest committee of the reliability run is now in session at Mr. Scarritt's office. The chairman has just announced that, on account of the immense amount of detail to be considered and which is not nearly complete, it will be impossible to make an announcement of the awards before Thursday evening at the earliest. He had no other information to give to the press to-day.

At a meeting of the executive committee of the manufacturers' association held yesterday afternoon a resolution was adopted instructing the secretary to inquire into ways and means of conducting a run from New York to Chicago next season, in accordance with the invitation of the Chicago Automobile Club.

New York, Oct. 22.—(Special telegram.)—The contest committee decided this afternoon not to award the President's cup for the best performance, but to request makers with maximum scores to give the cup to the club as a permanent trophy and accept gold medals, the names of winners to be engraved on the cup. Secretary Butler says the number of those tied for highest honors has been raised to sixteen or seventeen and that the names of the winners will probably be announced tomorrow.

New York, October 21.—After five days of constant work the compilers of the results of the reliability run so far as shown by the records of the official observers handed their report to the contest committee at its meeting at the Automobile Club of America last evening. Before the members went into executive session the newspaper men were notified that there would be no news forthcoming that evening. It is understood that the session was devoted to a close study of the figures.

Chairman Winthrop E. Scarritt, of the committee, was questioned this morning by a MOTOR AGE man as to the probability of an early report. "Our committee will meet again at my office tomorrow afternoon at 1 o'clock," said Mr. Scarritt. "There may be something to give out after the meeting. All I can say about results is that there will be found to be considerably fewer clean scores than people imagine. The run has been a

wonderful demonstration of the automobile," he continued, "and will prove of incalculable benefit to the industry and the sport. There were machines that went through not only without a stop, penalized or otherwise, but without a repair or adjustment or being touched in the garage over night. The run has proved American machines at least fully equal to the best of the foreign makes. That sixty-eight of the seventy-five automobiles that started should have got through and that the entire caravan made the journey within the legal speed limit without an accident to an outsider save one runaway, whose driver afterward acknowledged his reins were weak, have made a great impression on the public. Many have come to me since the test and told me how closely they had watched the run and that its results had convinced them that it was now safe to buy automobiles."

Just what Mr. Scarritt meant by the small number of clean scores made is a matter of conjecture. It was learned on Sunday on excellent authority that the honor list had been reduced to thirteen. Some go so far to-day as to say that ten is the number. In view of the evident misapprehension of some of the official observers on some points a circular letter was sent to all of them on Friday. The questions asked were:

"Did the driver of the automobile in which you acted as observer kill time on finding that he was ahead of his schedule?"

"Did the driver of the automobile in which you were an observer permit his carriage to run backward on the hills, keeping the motor running, so as to get sufficient speed to mount the hill?"

"Did the driver at any time leave the scheduled route, except at Windsor Locks, where a detour was necessary on account of the road being torn up, and between Worcester and Boston, where the arrows had been taken down?"

The cutting down of the list of twenty claimants to perfect scores seems to have come about through the erroneous disregard of the official observers of the cardinal run of the run, which called for a 14 mile an hour speed limit throughout the journey.

Three or four steam machines are said to have been

stricken out because the observers made up the unpenalized stops allowed for taking in water and gasoline instead of adding the time consumed to the schedule time. Other drivers seem also to have similarly erred in making up time lost by stops, penalized and otherwise.

Similar errors seem to have occurred in making up non-penalized time lost in making tire repairs.

"Our rules were plain," said Mr. Scarritt this morning, "and we propose to interpret them strictly. We must do this in justice to all the competitors for the president's cup. By facing the music this year and strictly enforcing the rules we will make them plainer for next year's contest and insure their strict observance hereafter. If we are to award prizes and there is to be such keen competition for them we must draw the lines closely."

Proposes More Severe Trial.

New York, Oct. 18.—Winthrop E. Scarritt, chairman of the A. C. A. contest committee, in an interview today suggested the possibility of next year's run being to Montreal. It is very generally felt that this year's course was much too easy and the day's run far too short. The run to Montreal would be on the same course as last year's endurance run to Rochester as far as Albany and would then strike due north through Troy, Saratoga and Glens Falls, thence east of Lake Champlain to the Canadian border. The distance is about 650 miles. This would require 108 miles a day for a 6-day run.

Recollections and Suggestions.

The jockeying for first position as the machines approached New York on the last day of the run led to some pretty work. F. A. La Roche in his Darracq led down to the city limits and on pulling out to pass a vehicle in front of him found it was the committee's car. When he dropped back a Stevens-Duryea had taken his place, but La Roche finished among the first four to reach the control at 58th street.

The Prescott, which went through the reliability run with a perfect score, not making a single stop, penalized or otherwise, has a remarkable record. The same machine did a mile at Staten Island in 1m. 37 1-5s, won certificates in the L. I. A. C. and A. C. A. 100-mile endurance runs and in a tour through New England covered 2,023 miles in 16 days without any cost for repairs. It is a stock machine and was the only one entered by the firm in the New York-Boston contest, the company having enough confidence in its product to believe that it would do the work out for it.

MOTOR AGE, published over 1,000 miles away from where the contest was conducted, is generally admitted to have had the finest illustrated account of the event and was first in the hands of its readers from 12 hours to 4 days ahead of its contemporaries published in New York, the scene of the finish.

The operator of one of the steam cars which had, up to the time of reaching the outskirts of New York, got through without a penalized stop, was unfortunate in finding his water tank empty and the water in his glass falling when within a few blocks of the control at 58th street. After making such a clean record he had to ask for assistance of one of the other vehicles to reach the

finish, which he did by being pushed ahead. Subsequently he was interviewed by the newspaper men, one of whom said, "You were towed in, were you not?" "Towed in! Towed in! I should say not," said the chauffeur indignantly. "Well, you were pushed in," interposed another interviewer. "Yes, I was pushed in," admitted the operator, "but I wasn't towed in."

Some of the observers who were unaccustomed to early rising found it hard to turn out at 6 o'clock in the morning, which was necessary when the operators desired to take advantage of the rule admitting them to the garage at 7 o'clock. As a result the operators became very solicitous that their companions should retire early, and it was amusing to note the care and watchfulness with which several of the observers were surrounded.

That the public is becoming better acquainted with the various types of automobiles and keeping posted on the latest additions to the industry was illustrated by the inquiries one heard at the various controls. "Where is the Stevens-Duryea?" "Where is the new Toledo gasoline machine?" "What's the number of the Franklin car?" and similar questions showed that the education of the masses on automobile matters is progressing rapidly.

There were several sales made in New England as a direct result of the contest. The two White delivery wagons were sold to a merchant in Boston and immediately after that contest returned to that city over the roads. Percy Owen says he made several sales of Wintons to people along the route, with some of whom, of course, he had previously been in communication, and several other manufacturers reported the sale of the machines which were entered in the run.

The position of observer in a contest like the one just ended is anything but the enviable one generally supposed. In the first place it requires a man who can leave his business for a whole week or more, and for a journey that to one used to sedentary habits involves considerable fatigue. After a man had been riding with an operator for a day or two he naturally becomes more or less friendly to him and attached to the machine. The result of this was that when a stop was made the observer was left between the option of betraying the club whose guest he was or hurting the chances of a manufacturer with whom he had necessarily become closely acquainted. Then again, to a man of broad mind the idea of suspiciously watching his companion every time he buried his head in the entrails of the machine for fear he might replace some part was naturally repugnant. The feelings of the observers were apparent to the newspaper men following the run. Observers who were known to have been on machines that made stops would on arrival at the control report "No stops," and then smile consolingly at the operator beside them. This occurred so often that the scribes had certain men marked as being suspiciously friendly. The idea of Mr. Scarritt's of changing the observers every day is a good one and in future will no doubt be followed.

One observer who became a familiar figure during the contest was riding in a gasoline machine. Just after the vehicle left controls he would fold his arms, place his feet on the bonnet and go fast asleep. As the other machines passed the operators took great delight in violently tooting their horns, but the "observer" remained undisturbed.

To a man used to fast traveling the slow pace necessary to keep within the schedule of fourteen miles per hour was exceedingly tiresome. At the approach of almost every control most of the competitors were ahead of time and crawled into town at a snail's pace. In several towns where the people on the sidewalks did not understand that the contest was not a race an injurious impression was made and such remarks as "Here's another one broken down," were heard.



CLOSING DAY SCENES AT THE RELIABILITY RUN FROM NEW YORK TO BOSTON AND RETURN.

Motor Age

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The editor will be glad to receive communications for publication. They must be accompanied by the names and addresses of senders, which will not be used if request be made to that effect. Contributions will not be paid for unless accompanied by notice that payment is expected.

Subscription, Two Dollars a Year, - Six Months, One Dollar

BRITISH AUTOMOBILE LEGISLATION.

The British authorities are confronted by even more serious problems in the matter of automobile legislation than are those of our own country, first because of the greater number of machines used in Great Britain, and, second, because of the natural inclination of the drivers to make fast time on the splendid roads they use. Details of their deliberations will, therefore, be useful to those who are considering the matter in America. Six years ago, according to the London Telegraph, the highest average speed of any motor car, either in England or on the Continent, was under 16 miles an hour, whereas 12 months back it had actually risen to nearly 60. Regulations which were thoroughly appropriate in 1896 are accordingly quite out of date in 1902. Already the automobile club has prepared a definite scheme recommending that the limit of speed fixed by parliament not so very long since should be abolished, and leaving the local government board to frame a new set of rules. It has even gone so far as to outline what the fresh regulations should be.

1. The driver of a light locomotive shall not drive at any speed greater than is reasonable and proper, having regard to the traffic on the highway, or so as to endanger the life or limb of any person at the time on such highway.

2. If the weight, unladen, of a light locomotive does not exceed 2 tons, then the limit of speed of 14 miles an hour provided by section 4 of the act shall not apply, provided the locomotive is fitted with efficient brake power, except under the following circumstances, when section 4 of the act shall apply:

- (a) When a light locomotive is passing through towns, villages, or crowded places.
- (b) When the light locomotive is meeting any horse or cattle driven upon the highway.
- (c) When the driver is not able to see that the high-

way, or any road or other highway joining therewith, is unobstructed for a distance of 50 yards.

STEAM AUTOMOBILES OF THE FUTURE.

Manufacturers of steam vehicles who expect to keep in line with gasoline carriage makers must be prepared for radical changes in design and construction. Simply conforming with the outlines and general appearance to that of a gasoline machine does not place a steam machine in the same class. The coming steam automobile will have its boiler in front, under a hood. Its engine will be under the front seat, in a vertical position, as usual, but will be attached to the cross frame of the running gear, as is a gasoline motor. Plenty of room will be found in the rear and below the line of the running gear for water and fuel tanks. It will be equipped with an automatic water and air pump as well as the regulating fuel control.

The running gear will be of the French type now becoming popular in this country, in which all machinery, tanks, etc., are carried on the angle iron frame beneath the line of and entirely independent of the body. It will have two speeds, of some well known type of change gear. This is a necessity in a long distance machine. A steam engine will show more economical results, both in water and fuel consumption, when running at a high rate of speed and cutting off about one-third stroke, than when running at a slower speed and cutting off at from five-eighths to full stroke, still developing the same power.

By placing the boiler in front under a hood, both steam and water gauges are brought into plain sight of the operator.

The boiler will be of the water tube variety, and, with condensing coils in front of the machine, will need only a moderate water supply, as compared with that now used by most steam machines. Such a vehicle will, of course, be heavier than the type now in use, but will give greater satisfaction to maker and user.

THE FUTURE OF THE INDUSTRY.

It is stated that the great automobile companies are losing money today and have been for the past year. This is not surprising, and in fact was predicted by many of our ablest business men, says the Worcester (Mass.) Gazette. Such has been the experience of the bicycle makers, whom the automobile manufacturers most nearly resemble in business, and a careful study of the conditions underlying each industry will easily discover the cause for this. Each business was to a large extent wholly new and was expanded with great rapidity. Attractive goods were put on the market at high prices and sales were easily made to an inexperienced public. The manufacturers themselves knew little of the actual wearing qualities of their goods, and necessarily had little experience of the relative value of the various practicable methods of designing, building and operating the machines.

But beyond all this, an attempt was made to create a

new industry "out of the whole cloth." This was contrary to every principle of business. The great industries of our country have almost exclusively been built up from small beginnings by slow process of evolution. It is true that they were organized by master minds, but before an industry could be brought into the form desired by the progressive business man it was put through a sifting process. That is to say, first came a true evolution, a survival of the fittest among many forms that were "tried and found wanting." Those plants which succeeded were enlarged, and copies of them were built. The great organizer came later and, taking the plants which survived, and the forms that had not been found wanting after trials by many men, he bound them together and appointed the ablest man to oversee all the details.

Such in outline will be the history of the automobile industry for the next few years, and the public will do well to beware of attractive statements offered by promoters of new enterprises in this industry. The automobile has come to stay, but the industry of its manufacture has not established a sure footing yet.

ECHOES OF THE BIG RUN.

After the French contests the automobiles engaged are taken to some large garage, when the public and prospective purchasers may examine them. Immediately after the conclusion of the recent run from New York to Boston and return a majority of the competitors hurried their machines away from New York and thereby lost the opportunity of making many sales. For several days following the event prospective purchasers who had read of the performances of the vehicles were visiting one garage after another with a desire to examine them, but, with few exceptions, were unable to find any trace of them. One man, a member of the Automobile Club of America and an observer on one of the competing cars, related that he had watched the performance of a certain machine, but that when he called to see the manufacturer or his representative found they had returned to the factory the day after the contest ended. During the past week four or five people, all men who are about to purchase machines, called at the Eastern office of the MOTOR AGE and were considerably disappointed when told that the vehicles they wished to examine had been returned to their respective factories.

It would seem that in connection with the next big event of this character the club should make some arrangement whereby the vehicles will be exhibited for at least 3 days after the run. This would not only prove of great interest to the public, but would pay well in sales for the extra expense incurred.

How to Recharge Dry Batteries.

Dry batteries which have become exhausted can be recharged by a very simple process. Remove the outer cardboard casing from each cell and drill six small holes in the zinc casing about 1 inch from the bottom. As four cells are generally used for ignition purposes in connection with the induction coil, get four small glass or

stone jars, an inch or so larger in diameter than the cells and about three-quarters the height of the same. Dissolve about half an ounce of powdered sal-ammoniac in each jar, in a sufficient quantity of water to bring it almost to the top of the jar when the cell is in it. Get four cells of gravity battery and put them in series with each other, by connecting the zinc element of one cell to the copper element of another. Put each dry battery cell in the solution in its respective jar and connect the three binding posts on the zincs together, and the three carbon posts also, by means of insulated copper wire. Then attach the wire from the zincs to the zinc element of the gravity batteries, and the wire from the carbons to the copper element of the gravity batteries. Allow the cells to remain over night, and if they are of good, reliable make they will be found in the morning to be almost as good as new. This process of recharging the dry batteries can be repeated at least twice and even three times, but of course after each successive recharging their renewed life will be shorter than formerly. After the batteries have been recharged the small holes which were drilled in the zinc casing can be stopped by means of a strip of adhesive tape, covered with bicycle tire cement, and tightly wrapped around the zinc casing over the holes. The cells should be wiped thoroughly dry and then may be replaced in their cardboard casings and are ready for use.

Oiled Roads a Complete Success.

Experiments recently completed at Farnborough, England, show that the use of crude petroleum for sprinkling roadways were entirely successful. The 7 days' trial, after the roadway had been completed, demonstrated the following facts:

That it requires 3,780 gallons of crude petroleum to properly oil a mile of public highway 23 feet wide.

That a surface that has been rolled and swept beforehand gives the best results.

That a water cart or sprinkler does not give good results, giving too uneven a distribution of the oil, and some other means will have to be devised to uniformly sprinkle the road surface.

That the slight odor while the oil is being applied is not at all unpleasant and entirely disappears after a few hours.

That so quickly is the oil absorbed by the roadway that rubber tires can pass over it within a few hours after the application without injury.

That the oil makes the roadway a silent and dustless pathway for vehicle traffic.

That the brown color of the roadway is far less trying to the eyesight than the white, dusty roads.

That there is no danger of side slipping on the oiled roadway, and that it sheds water like a duck's back.

Sir Thomas Lipton's opinion of the future of automobile production is this: "It all lies between England, France and Germany. Today France is undoubtedly the leader, but within the next 2 years the United States will lead the world in the manufacture of automobiles."



RACING

In spite of many difficulties the second annual fall race meeting of the Chicago Automobile Club was conducted, with reasonable success, at the Harlem race track, at Chicago, on Friday and Saturday last. The attendance was scanty. The event had been scheduled to take place at Joliet a month ago, and at that time the fastest machines in America were present, but rain prevented racing. It was then determined to hold the events in Chicago.

The Washington Park Club declined to permit the use of its track, except under conditions which the automobile club did not feel disposed to accept. At this point the management of the Harlem track came forward and offered to place its track and all its facilities, including its employes, at the disposal of the club, without a cent of cost. Rain continued to fall heavily, however, and as late as two days before the races started it was impossible to tell whether the track could be placed in such shape that racing would be possible. The Harlem management worked on it incessantly, so that on Friday, although extremely heavy, the track was in far better condition than had been anticipated.

Racing commenced at 2 o'clock Friday with a match race between Frank X. Mudd (Winton), scratch; J. B. Burdett (Olds) and J. E. Stevens (Olds), 3 minutes, who had jointly purchased a prize for the event. Burdett won in 5m. 40s. A special event for Oldsmobiles was won by D. B. Huss in 6m. 42s.; Burdett second, Stevens third.

The next event was productive of a protest. It was designed for machines of not more than 1 horsepower to each 100 pounds of weight, the contestants being L. P. Mooers (Peerless), Frank X. Mudd and John E. Fry (Wintons). The Peerless, which was the same one that took part in the Cleveland races, won by seven-eighths of a mile in 17m. 03s. and was protested as being ineligible to the class. The racing committee subsequently weighed the machine and found that with no gasoline aboard it weighed 47 pounds over the necessary weight. The protest therefore was not sustained.

Still another protest resulted in the 1 mile event for stock steam vehicles. Dr. L. W. Sheppard entered a

vehicle with engine and boiler in front, closely resembling most of the gasoline machines, which the other competitors believed could not be construed as a stock vehicle. After investigation, however, the racing committee disagreed with them. The doctor won the event in 1m. 41 2-5s., J. W. Sunderland, with a Locomobile surrey, being beaten 2-5 of a second.

J. B. Burdett (Olds) won a 10 mile race for gasoline vehicles of between 0.50 and 0.70 per cent of a horsepower to 100 pounds, by a little over a mile, in 23m. 58 4-5s. Then the Peerless and Winton Pup came out for a friendly contest of 5 miles. The Winton won by 35 yards in 8m. 35s.

The competitors in the pursuit race were J. B. Huss, J. B. Burdett and J. E. Stevens (Olds), and W. Robinson (Friedman). The latter failed to understand the starting signal. The machines were started a quarter of a mile apart. Stevens was caught by Burdett in the second mile and Burdett by Huss in the sixth mile, the time for that distance being 12m. 35s.

The last of the regular events on Friday was a 5 mile handicap, ruined, unfortunately, by mishaps and absences. The Locomobile racer and the Winton Pup, operated by Chas. B. Shanks, were on scratch, Fry and Mudd (Wintons) being given a start of 1m. 45s. A broken crank put the Locomobile out of the event at the start. Shanks caught Mudd at 2 1/4 miles, but was unable to overhaul Fry, who won by 200 yards, in 9m. 5 1-5s. The Pup's time was 7m. 17s.

A motor bicycle race closed the day's sport. Charles Miller (Orient) won by 200 yards, E. Holway (Orient) being second and G. H. Gardner (Mitchell) third.

A light rain fell Friday night. There was just enough of it to alarm every one and convince most of the people interested that there would be no racing on Saturday. The track, however, appeared to be none the worse for the additional soaking when the machines arrived at the post at 2 o'clock.

The opening event was a 5 mile race between Huss, Burdett and Stevens (Oldsmobiles) and B. M. Young (Friedman). Stevens was lapped in the fourth mile. Huss won, as usual, with Burdett second, Young third. The winner's time was 11m. 13 2-5s.

A 25 mile race, open to all makes, weights and classes, had seven starters, but of these two only were regarded as having any chance to win, viz., the Pup and the Peerless racer, driven respectively by Messrs. Shanks and Mooers. Other starters were Fry and Mudd, with Win-



**CHICAGO AUTOMOBILE
CLUB'S SECOND
ANNUAL FALL
RACE MEET.**

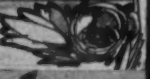
**SHEPPARD WINNING
THE ONE MILE STEAM.**



MOERS WINNING SPECIAL RACE.



**SHANKS WINNING 25 MILE
OPEN.**



**FEARLESS RACER
FOLLOWED BY
SHANKS, FRY AND
MUDD IN THE
25 MILE OPEN.**

START OF FIVE MILE GASOLINE



**START OF
THE
OLDSMOBILE
SPECIAL.**



**MOERS
WINNING
THE 5 MILE
GASOLINE.**

START OF THE FIVE MILE STEAM.

ton touring cars; Dr. F. H. Davis, with his last year's Winton stanhope; A. C. Banker, Peerless runabout, and M. Reimers, Locomobile racer. Davis stopped at 3 miles and Mooers at 4½ miles, when three-eighths of a mile behind Shanks. Mooers stated afterwards that kerosene had been placed in his tank by mistake. The Locomobile stopped at 9½ miles, after a good race with Mudd up to that point. The event, however, had no semblance of a race. Shanks lapped his competitors, with the exception of Fry, time after time, and eventually won by three-quarters of a mile in 39m. 38s. Fry lapped Mudd for the first time at 6½ miles and passed him four times before the end of the journey, eventually finishing in 41m. 26s. Mudd and Banker, who had been plugging along merrily in a little Haynes-Apperson runabout, did not complete the journey.

In the 5 mile event for steam vehicles of all weights, Reimers managed, for once, to get the Locomobile racer under way and won easily in 8m. 04s. Dr. Sheppard's machine, the subject of the protest the first day, was second, and A. J. McDuffee's Locomobile surrey third.

There were eleven starters in the 5 mile handicap for gasoline vehicles: F. C. Greene's Autocar, a Locomobile, Dr. Sheppard's steamer and D. B. Huss' Oldsmobile were at scratch; Burdett (Olds), 30 seconds; A. C. Banker (Haynes-Apperson), B. M. Young (Friedman), 50 seconds; J. A. Barton (Darling), 2 minutes, and J. E. Stevens (Olds), Ralph Temple (Waverley electric), 3 minutes. Huss broke a chain at the start. The machines closed up satisfactorily, the Autocar taking the lead at 4½ miles and holding it to the finish. Banker was second and Burdett third. Time, 9m. 48s.

A 5 mile invitation handicap closed the programme. The invitation feature was forgotten, everyone seemingly being desirous of taking part in the closing event. There were eventually thirteen starters, with the Pup and Locomobile racer at scratch; Peerless, 45 seconds; Fry's Winton, 1m. 15s. Dr. Green's Autocar and John Farson's and F. X. Mudd's Wintons, 2 minutes; Huss' Oldsmobile and Banker's Haynes-Apperson, 3m. 30s. and J. B. Burdett's Olds, 4 minutes. Although the light machines managed to retain their lead and secure the first two places, interest centered in the race between the Pup and the Peerless. The Locomobile racer was again left at the post. At the end of 4 miles it appeared to those who were not familiar with the tactics of the diplomatic Mr. Shanks that the Pup was hopelessly beaten, for it had regained not more than half of the distance secured by the Peerless in its 45 seconds start; but the trip down the back stretch the last time was a revelation. Three-eighths of a mile from the finish the Winton was close behind its rival and eventually finished 30 yards in the lead. So far as the places were concerned, Huss was first, Burdett second and Fry third. The actual time of the winner was 9m. 55s. and the time of the Pup was 7m. 58s. The race was the only one of the two days which thoroughly aroused the enthusiasm of the spectators. A few more such would result in a vast increase in the number of spectators.

Saturday evening there was an informal smoker at the club house, and Sunday several of the visitors were taken over the boulevards of the north and south sides.

Mabley's Boston-New York Record.

C. R. Mabley, of Smith & Mabley, New York, left Boston at 8:20 a. m. Monday of last week and reached New York at 6:30 the next evening. His actual running time is reported as 12 hours. The run from Boston to Springfield, Mass. (96 miles) was made in 4 hours 30 minutes elapsed, and 4 hours 5 minutes riding time. The run to New Haven, Conn., from Boston (164 miles) was done in 12 hours 15 minutes elapsed, and 8 hours 10 minutes riding time. New Haven was reached at 6:40 o'clock Monday evening, and the start for New York was not made until 1:40 next afternoon, the 79 miles being covered in 4 hours 50 minutes.

Winton Secures Boston-New York Record.

Harry Fosdick started from Boston at 1:05 a. m. on Wednesday of last week bent on lowering the record between that city and New York. His machine was a Winton touring car, said to be the same one in which Harry D. Corey had just finished a tour of 2,000 miles



The Winton Record Breaker as It Arrived in New York.

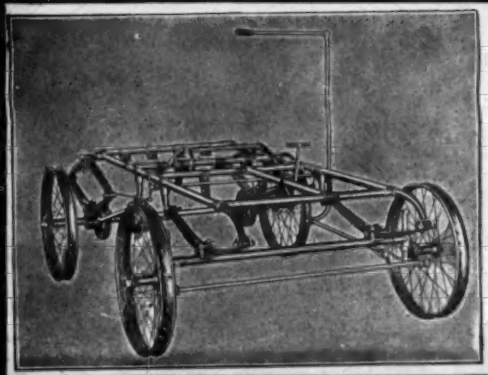
or more in Europe. No stops were made except for minor repairs, which occupied 1 hr. 42m. Fosdick reached New York at 2:35 in the afternoon, the total time having been 13 hours 30 minutes and the actual running time 11 hours 48 minutes. He was checked, along the route, by officials of the reliability run.

The Detroit races will be well attended by out of town automobilists. Cleveland will send Messrs. Winton, Shanks, Collister, Sayle, Moores and a dozen others. Chas. Hall, Ezra Kirk and George Ford, of Toledo, will be there. Members of the Chicago club to the number of a dozen have secured a special car on the Wabash, leaving Thursday night at 11 o'clock.

HERCULES RUNNING GEARS

For Electric and Gasoline Vehicles

There are
no weak spots
in these gears.
Original design;
sound
construction.

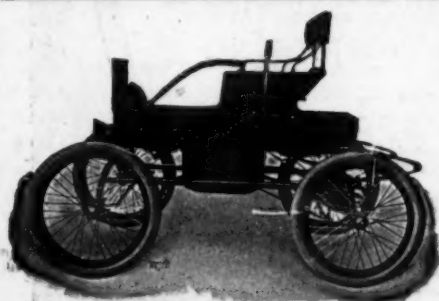


We supply
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gears to concerns
desiring to
modify our
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SMITH STAMPINGS FACTORY
Milwaukee * * * Wisconsin

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IF IT'S A BAKER IT'S THE BEST
The Most Efficient of all Electric Vehicles



THE LIGHTEST WEIGHT
THE STRONGEST MADE
THE BEST FINISHED



We will send you a Catalogue, or we will write you. Address
The Baker Motor Vehicle Co.,
CLEVELAND, OHIO



STANDARD

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TIRES

**"Born for Success
with those qualities which win"**

**Hartford Dvynlop
Tires AND Tires**

Have Stood Pre-eminently Foremost Since the Introduction of Pneumatic Tires

Few devices have been the subject of a greater inventive faculty or more persistent and successful exploitation, and few have reached such a high state of development.

**They Never Vary in Quality or Workmanship Because
They Cannot Be Made Better or of Better Materials**

If the BEST is none too good for you, it will pay you to adopt these widely and most favorably known tires. Every user is bound to be satisfied with them.

True Economy Represents Buying the Best Wherever You Can Find It

We Also Manufacture

THE TURNER ENDLESS SOLID TIRE

for very heavy vehicles. Particularly adapted for use where proper strength is required and length of service is guaranteed.

**THE HARTFORD RUBBER
WORKS COMPANY**

**Hartford, Conn.
U.S.A.**

ANSWERS TO CORRESPONDENTS.

Roller or Ball Bearings?

New Orleans, La.—Editor MOTOR AGE: Which is the better to use on an automobile weighing about 1,500 pounds, roller or ball bearings? The rear wheels are driven by a live axle, to which they are, of course, attached.—W. S. R.

As about one-third of the weight of the machine should be on the front wheels and two-thirds on the rear wheels, ball bearings would be more suitable for the front and roller bearings for the rear live axle.

Reliable Rotary Water Pumps.

South Bend, Ind.—Editor MOTOR AGE: I am desirous of equipping my gasoline automobile with a rotary water circulating pump, and would like to know the name and address of a reliable maker of this article.—P. D.

The Lobee Pump and Machinery Co., Buffalo, N. Y., makes a reliable rotary pump for this purpose.

De Dion Coil and Plugs.

Omaha, Neb.—Editor MOTOR AGE: Can you kindly inform me where I can procure a genuine De Dion spark coil, and also spark plugs to use with the same?—A. R. W.

Kenneth A. Skinner, 179 Clarendon street, Boston, is the sole agent for the De Dion parts and accessories.

Air-Cooled Motor Details.

Chicago, Ills.—Editor MOTOR AGE: As I operate a motor cycle, I would like to ask a few questions, which please answer through your paper. How long should batteries last? It seems to me I have trouble that way. Should the spark at the contact breaker be small? Sometimes there is a large violet-colored spark similar to that at the plug terminal. From what cause should the motor while running suddenly check as though premature ignition had taken place? What is the best cylinder lubricant, a heavy or a lighter oil, for air-cooled motors? Please aid an ignoramus.—J. A. H.

It is assumed that dry batteries are referred to by the writer. Their life is an open question, depending a great deal on their make, and also on the coil, in connection with which they are used. Some makes of dry batteries are said to have been used on a motor bicycle for over 2,000 miles. The spark at the contact maker should, if the batteries are in good condition and the motor properly wired, be of a reddish yellow color. There is evidently some short circuit between the primary and secondary wires, which would give the violet spark mentioned and also account for the batteries lasting only a short time. The motor will check up as stated from two causes: First, if the cylinder head gets too hot premature ignition will take place; second, from the ignition mechanism being so advanced as to cause a spark too far ahead of the end of the piston stroke. A heavy bodied lubricating oil is better than a lighter one in an air-cooled motor.

Efficiency and Economy.

Ashland, Ohio.—Editor MOTOR AGE: Can you inform me whether a two-cylinder air-cooled motor with two cylinders, 3-inch bore and 6-inch stroke, cranks set at 180 degrees, will give as good results as one of 3-inch bore and 8-inch stroke, the piston speed being the same?

Which of the two will run the cooler and be the more economical in the use of gasoline?—J. H. Burkholder.

Two small cylinders will give better cooling results than one large one if properly designed and given ample radiation surface. Two-cycle motors are never built with stroke equal to twice the bore of the cylinder, or even greater, as suggested. They usually have the stroke equal to the bore, but never over $1\frac{1}{2}$ times the bore. A single cylinder motor would be more economical in the use of gasoline, but it is almost out of the question to use an air-cooled bicycle motor larger than 3 $\frac{1}{2}$ inches bore and 4 inches stroke.

Inquiry for a Kerosene Burner.

Philadelphia, Pa.—Editor MOTOR AGE: In your issue of September 25, page 19, you refer to the perfection of a kerosene burner by an English company for generating steam, and as we are interested in a device of this character we have to respectfully inquire if you will favor us with the address of the manufacturer?—Elisha Webb & Sons.

Address The Hydroleum Co., Ltd., Willesden Junction, London.

Speed Change Gear.

Evansville, Ind.—Editor MOTOR AGE: Can you inform me of the best form of speed change gear or speed transmission to use in a high powered gasoline automobile which I am building?—T. B. H.

The sliding gear transmission is by far the best form for this purpose, with friction clutch in motor fly wheel.

Two Speed Bicycle Gear.

Salina, Kas.—Editor MOTOR AGE: I would like to obtain the name of a maker of a two speed bicycle gear for use on a motor bicycle.—E. S. M.

The Brown-Lipe Gear Co., of Syracuse, N. Y., makes such a gear.

Two or Four Cycle Motor?

St. Louis, Mo.—Editor MOTOR AGE: Which is the better type of motor to use on a bicycle, a two or four cycle?

A four cycle motor is by far the more reliable of the two. It is somewhat more complicated but is more economical in fuel consumption.

Width of Face and Pitch of Gears.

Dallas, Tex.—Editor MOTOR AGE: I would like to know what pitch and width of face should be used in a speed change gear to transmit about 10 to 12 horsepower. The fastest speed will be about 900 and the slowest 450 revolutions per minute. The gears will be from 3 to 9 inches in diameter.—J. H. W.

In good practice it would be proper to make the different sets of gears of different pitch and width of face, but for convenience in cutting, and replacing when worn, it is better to make the gears alike. To transmit the horsepower mentioned the gears should be No. 6 diametral pitch, and $1\frac{1}{2}$ to $1\frac{1}{2}$ inches face. The pinions should be of steel and the gears of phosphor bronze.

Maximum Motor Speed.

Janesville, Wis.—Editor MOTOR AGE: What is the proper speed, or rather the highest speed, that a 5x6 double cylinder gasoline motor can be run with satisfactory results?—A. S. W.

With a piston velocity of 900 feet per minute, which is the practical limit of speed for any size of motor, the speed should be 900 revolutions per minute.

INDUSTRY

For a number of years after the successful introduction of electric machinery manufacturers endeavored to build motors and generators to operate at a sufficiently low speed for direct connection. This was finally accomplished, and today it is possible to get an electric motor or generator for direct connection to the engine line-shaft, or whatever requires power, but this is accomplished at a considerable sacrifice of efficiency and at much increased cost, inasmuch as an electric motor of say 4 horsepower designed to operate at a speed of 100 revolutions per minute would require castings and design that would give 18 horsepower at 600 revolutions per minute, and would cost about \$200 more than a 4 horsepower motor designed to operate at its most effi-

cient practical speed of about 1,000 revolutions per minute. The illustrations show two types of this company's transmitter. Cut A shows a very small size of the device built into a bicycle, enabling the use of a high ratio of gears and at the same time permitting a change from such high gear to a lower one, for hill climbing, rough roads and slow work. It will be noticed that

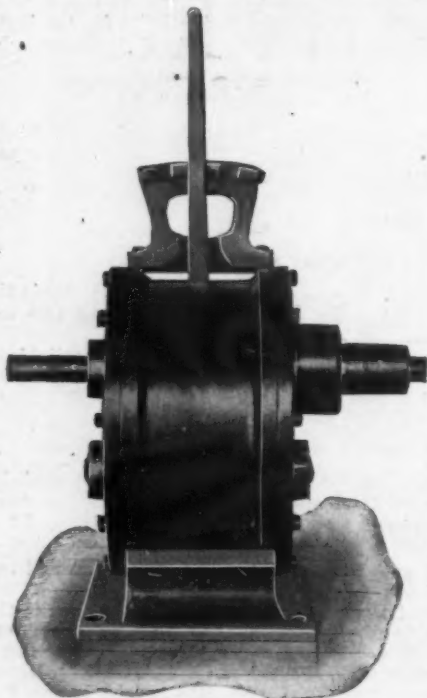


Figure B.

cient practical speed of about 1,000 revolutions per minute. The H-F Construction Co. of New York has for several years been manufacturing a line of transmitting machinery which enables the use of the most efficient high speed motor, or engine to be directly connected to machinery operating at a different speed. It appears to be in a position to give the public a trans-

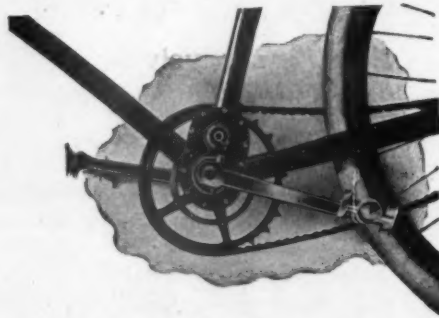


Figure A.

this little machine is made as a part of the bicycle. Its weight is about 3 pounds and it can be furnished to cycle manufacturers with plugs extending for ready brazing to the bicycle frame. Two speeds are thus obtained by simply moving a slide in the frame near the saddle. This application has also great merit for motor cycle and automobile work.

But B represents a two-speed transmitter of the type that has been applied to steam and electric automobiles in addition to many stationary applications. This type of transmitter combines a positive clutch with two speeds. A reversible transmitter is also made permitting two speeds in either direction.

Chicago Agencies for Next Season.

Chicago agencies have been busy for the last 3 or 4 weeks arranging their lines for next season. The Oldsmobile agency has, of course, been eagerly sought. The machine has been handled successfully heretofore by the Temple-Austrian Co., but for the coming season will be in the hands of Githens Bros. Arrangements have been made for a division of their business. The present store will be continued by Walter L. Githens, and a separate branch will be organized to handle the Olds, with Herbert A. Githens, at present with the G & J Tire Co., as its manager. On the other hand the Toledo, which Githens has handled heretofore, has been transferred to

The
Remarkable
Endurance

of the

**WHITE
STEAM
CARRIAGES**

again conclusively
proved in the



A. C. A. RELIABILITY RUN

In the 500 mile Reliability Contest from New York to Boston and return, arranged by the Automobile Club of America

**Three White Steam Stanhopes covered the distance without stop, or trouble of any kind.
..... A Perfect Performance**

Two White Delivery Wagons (the only delivery wagons ever completing an endurance contest) also proved their reliability by coming through without mishap. These remarkable results, immediately following the English endurance run—in which the White was one of the two machines out of seventy to make a perfect record—proves beyond a shadow of doubt the perfection and trustworthiness of the White motive power.

Write for full particulars, including Prof. Thurston's report on our steam generator, and official reports of important endurance contests.

WHITE SEWING MACHINE CO.

(Automobile Department)

CLEVELAND, OHIO.

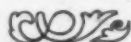
22 Union Square, New York, N. Y.
509 Tremont Street, Boston, Mass.
300 Post Street, San Francisco, Cal.

609 Main Street, Buffalo, N. Y.
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WAKE UP!

Don't Dream

about an **Ideal Running Gear** which you are going to make, but get one which has been tried and found true.

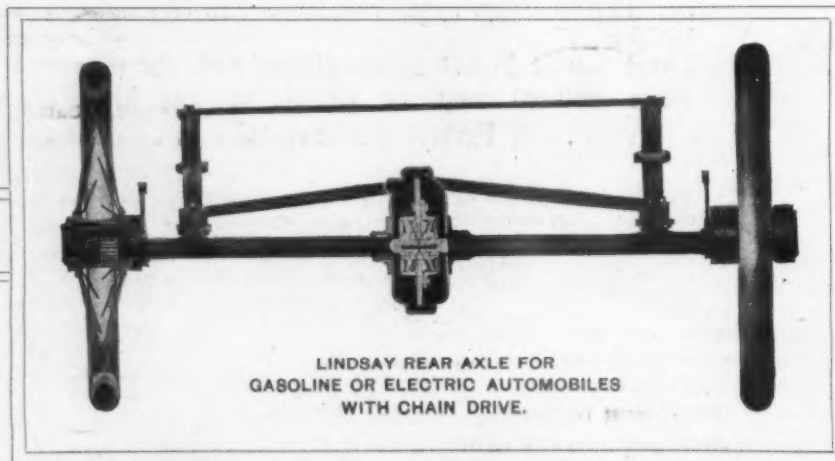


We Make

a Running Gear which is **Just right**, and at prices which will suit you. It is suitable for either gasoline or electric automobiles using a chain drive.



Don't think for a minute you can build a running gear as cheap as you can buy ours. Lots of people think that way, but when the junk man comes around they are ready to do business with him, and then buy a good running gear. :: :: :: ::



LINDSAY REAR AXLE FOR
GASOLINE OR ELECTRIC AUTOMOBILES
WITH CHAIN DRIVE.

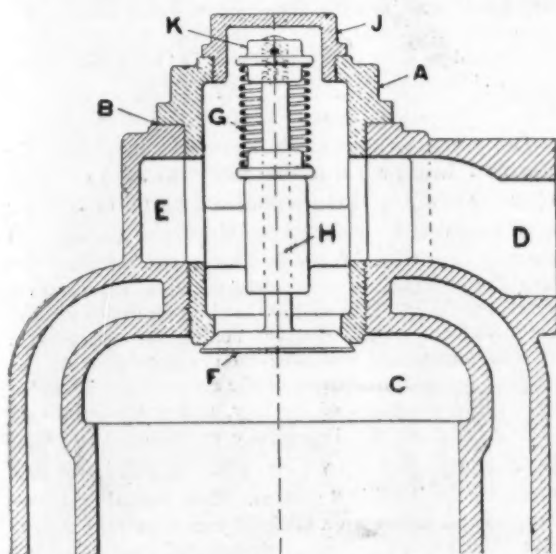
THE LINDSAY RUNNING GEAR, with differential and live shaft without friction or end thrust can't be beaten. GET OUR CATALOGUE

Lindsay Automobile Parts Co.
INDIANAPOLIS, INDIANA.

Temple, who expects within a few days to add to his line a runabout to take the place of the Oldsmobile. The American, made by the American Motor Carriage Co., of Cleveland, has been secured by Pardee & Co., 1404-1406 Michigan boulevard, who are designated as distributors. The firm has secured large territory, a definite announcement concerning which may be expected in a few days.

New Inlet Valve Which Saves Trouble.

During recent endurance and reliability tests in this country and abroad much trouble and delay were caused by mishaps to inlet valves of gasoline motors. Broken valve stems and springs and stuck valves were the chief causes of trouble. With the types of construction now in use either the valve chamber or the valve hood or bonnet must be detached from the motor to remove the inlet valve, and to accomplish this the intake pipe leading from the carburetor to the motor must be uncoupled. This means several operations. First the in-



Valve Which Is Removable Without Disconnecting Pipes.

take pipe must be uncoupled from the valve chamber by the removal of one union joint and the loosening or in some cases the removal of another union. Next the inlet valve chamber or bonnet must be removed, and then to get out the valve the spring cap must be removed. This last named part is sometimes so ingeniously constructed that no one but the maker of the motor could ever get it back in place except with a special tool or holder. These points caused delays in late contests varying from 3 minutes to 1 hour and 20 minutes.

Some of the troubles might be obviated by a plan of construction not more expensive and less complicated than some types at present used. The accompanying illustration shows a cylinder head design whereby the inlet valve and its cage may be removed without disconnecting the inlet pipe, or, in fact, anything except the valve cage itself. The valve cage A screws into the

cylinder head, as shown, and makes a gastight joint by means of the thread on its lower end in connection with the shoulder B on the upper part of the cage. The mixture is admitted to the combustion chamber C through the port D into an annular chamber E, surrounding the central portion of the valve cage, which has a cored opening around its periphery at this part to admit the mixture to the valve F. The spring G and valve stem H can be readily taken from the valve cage after it has been removed from the cylinder head by unscrewing the cap J on the top of the valve cage, taking out the split pin from the spring cap K and unscrewing it from the valve stem H.

Automobiles for Central America.

Fr. Bogen, a resident of San Salvador, Central America, at present visiting Berlin, writes MOTOR AGE as follows: "Automobiles have not yet been seen in Central America, but I expect to introduce them, and shall send, next month, the first two for a trial to San Salvador. It is my intention to establish a line between the port of La Libertad and the city of San Salvador for passenger traffic and freight. I am advised that in the United States the steam motor vehicles have proved satisfactory. I should be glad to receive information concerning them. Those which I am about to try are operated by alcohol. I shall sail for Central America at the end of this month by way of New York, where letters addressed in care of Fred Probst & Co., 54 Broad street, will reach me. If there are in Chicago any large makers of steam cars, and their success is established, I might go there and see them. I will adopt such cars as present the best guarantee of successful and economical work."

New Storage Battery.

A new storage battery for ignition purposes is made by J. T. Niblet, of Stockwell street, Greenwich, England. It is said to overcome all the disadvantages of the ordinary form of liquid batteries, as the active material in the cells is of a stonelike, yet highly porous nature. Bending or warping of the plates is impossible, as there is no clear liquid space between the elements. Another feature of this battery is the fact that if the casing of the cell becomes fractured the operation of the battery will continue, as there is no liquid to escape.

Electric Vehicle Co. Sells Large Plant.

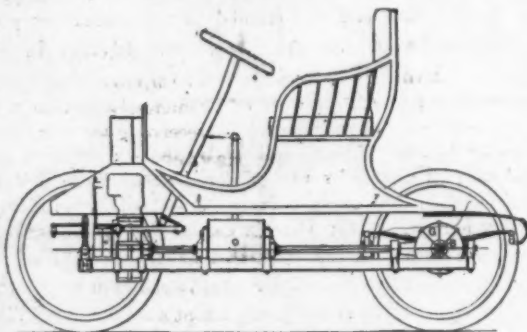
M. C. Budlong, vice-president of the Electric Vehicle Co., left Chicago Tuesday morning, after a stay of nearly two weeks, carrying with him the proceeds of the sale of the Siemens-Halske plant. The deal had been hanging fire for some weeks and eventually Mr. Budlong came on to complete it, which he did on Monday. The consideration was \$150,000. The purchaser was the National Malleable Casting Co. The plant has long been unoccupied. It comprises 28 acres between 13th and 16th streets and West 52nd and West 53rd avenues. There are ten buildings covering an area of 192,000 square feet.

The Electric Vehicle Co. has not operated the plant since it acquired it two years ago, concentration having been its policy.

Mr. Budlong spoke hopefully of a bright future for the gasoline vehicle his concern is making. The company has spent a fortune in developing this branch of its business and believes that in the Law vehicle, now ready for introduction, it has one which is unexcelled. It will be rated at 10 horsepower—and will have it.

Eastmead-Biggs Voiturette.

Messrs. Eastmead-Biggs, Frome, Somerset, England, have recently turned out a gasoline vehicle of the voiturette type shown in the accompanying illustration which is said to have made a surprising showing with regard to power and speed, considering the fact that it is equipped with a single cylinder vertical motor of $3\frac{1}{2}$ horsepower, and only 3 inches bore and $3\frac{1}{2}$ inches stroke. The motor, speed change and differential gear are all attached to a double tubular frame carried between



and beneath the front and rear axles. There are two speeds forward and reverse. On the fast speed the motor drives the rear axle directly by means of bevel gears on the differential. No universal joints or chains are used in the drive. With the exception of the motor, all rotating shafts have double ball bearings. This includes the change speed and bevel gear drive on the differential. This little vehicle has made a trip of 90 miles with a gasoline consumption of only $2\frac{1}{4}$ gallons. The gain in efficiency by the use of ball bearings is stated to be over 30 per cent, which probably accounts for the remarkably low gasoline consumption. As will be seen by reference to the drawing, the machine is exceedingly simple and compact. Wheel steering is used and the clutch and change gear controlled by a single lever. The motor is located in front of the dash, and the water and gasoline tanks are carried in front of the same, above the hood over the motor.

Sintz Will Show at Chicago.

Among the applicants for space at the Chicago show is the Sintz Motor Car Co., Ltd., of Grand Rapids, Mich., which will show three or four samples of a touring car of French make, beside running gears and engines. The company is now producing and will show for the first time at the New York and Chicago exhibitions a gaso-

line engine of a new type, the invention of Clark Sintz, one of the best known gas engine designers in the world, who has been working on this particular engine for over two years. Mr. Sintz was the inventor of the two-cycle gasoline engine and the natural gas engine, being the first man to introduce this type more than 20 years ago. The company expects to show an engine of reduced weight, increased power, less vibration and requiring less fuel than any other engine of like capacity. The vehicle will sell for \$2,500.

Only One Without a Stop.

A particularly striking object lesson was furnished by class A for automobiles 1,000 pounds and under in the recent New York-Boston reliability run. Fourteen carriages started in this class, but it was left for R. M. Owen in an Oldsmobile to finish in solitary glory. In addition to being the victor in its class, the Oldsmobile made the whole run without a single penalized stop of any kind, thus indisputably demonstrating the high degree of perfection attained by the Olds Motor Works in this world-popular runabout which is "built to run and does it."

Practical Use of Electric Vehicles.

Two years ago the rapidly increasing business of the Hartford Electric Light Co. was drawing so heavily upon the energies of the executive department that the appointment of an assistant to the general manager was thought necessary. While looking about for the right man President Dunham conceived the idea that use of an automobile might help matters, and as an experiment he purchased one of the Electric Vehicle Co.'s runabouts. It was found that the machine greatly increased the scope of personal inspection of the company's work going on in different parts of the city, and the appointment of the assistant was indefinitely postponed. President Dunham says that the vehicle, which is still in commission, paid for itself in 8 months. More recently the company has purchased an additional runabout for the foreman of line construction, an electric delivery wagon and a large electric emergency wagon for general utility and "trouble business." President Dunham states that these vehicles have proved very profitable and have saved the company approximately a third of its labor.

A Champion in His Line.

Pennington, the airship man, designer of all sorts of revolutionary automobiles, is in Racine, Wis. The Journal announces that "E. J. Pennington has received an order from the American Automobile Co., London, Eng., for 5,000 automobiles."

Items of Commercial Interest.

Jas. S. Holmes, Jr., has resigned the management of the Remington Automobile Co. to accept the management of the Perforated Music Roll Co., of New York, of which he will take charge on Nov. 1. He retains his interest in the Remington company. His position will be filled by L. M. Graham, who has been associated with the business as vice-president. At the same time E. H. Otis will

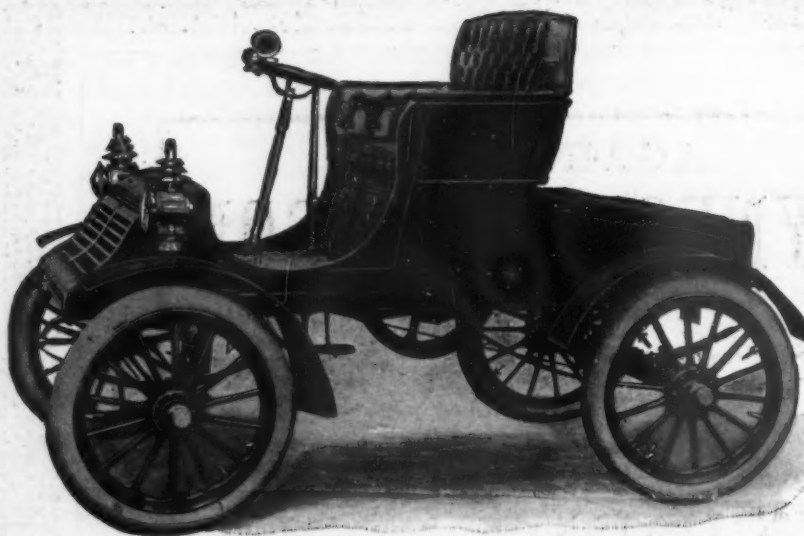
AGAIN THE
HAYNES-APPERSON
 MAKES A
PERFECT RECORD
 IN THE NEW YORK-BOSTON RELIABILITY
 RUN AND QUALIFIES FOR THE :: :: ::
PRESIDENT'S CUP


Last year, in the New York-Buffalo Run, the 9 horse-power Haynes-Appersons beat all makes, American and foreign, many of them of double the horse-power, winning HIGHEST HONORS OF ALL. This is the reason: The Haynes-Apperson is the ONLY AUTOMOBILE that has been consistently developed through 10 years of successful experience on American roads. The same development that has given foreign cars their reputation has given the Haynes-Apperson its proved reliability, but because of the more severe conditions in this country there is no car of equal horse-power that will last as long, handle as easily, and ride as smoothly on American highways as this American product.

Runabout,	7	horse-power,	2	passengers,	\$1,200
Phaeton,	12	"	2	"	1,500
Surrey,	12	"	4	"	1,800

A few cars for Immediate Delivery.
 Ask our customers. :: Get our booklets.

HAYNES-APPERSON CO.,
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 Built for
AMERICAN
 Roads
AMERICAN
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AMERICAN
 Drivers
 Quiet and
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The American Motor Carriage Co.
 514-520 E. Prospect St., Cleveland, Ohio

Announce, that they are prepared to show their

AMERICAN MODEL "A"

HYDRO-CARBON AUTOMOBILE



An Ideal Car

FOR
 Physicians
 FOR
 Business Men
 FOR
 Pleasure Driving

Any Lady Can Operate It
 Best Equipment Throughout



PARDEE & CO., Distributors

1404-06 Michigan Boul., Chicago

Write for Agency Proposition

Write for Catalog

become treasurer of the company, succeeding Frank P. Hilton, resigned.

A Locomobile of regulation stock pattern covered itself with glory at the late races at St. Louis. It won the 5 mile race for steam carriages in 7:17; another 5 mile race, open to all comers, in 8:15; second prize in the 1 mile open, and third prize in a 5 mile race for stock carriages. In addition to the prizes for these events, it was given a special prize for making the track record, and another for the fastest time for vehicles of less than 10 horsepower.

Moreau & Kuhling, of Brussels, who already handle automobiles and motor bicycles of European make, are desirous of handling American products and would like particularly to hear from manufacturers of parts and accessories. Mr. Kuhling was for years general manager of the Belgian Dunlop Tire Co. Mr. Moreau was his assistant. They will be glad to furnish the necessary bank references and will correspond in English or French.

Charles Cordingley, proprietor of the Motor Car Journal, of London, and promoter of the automobile show held annually at the Agricultural Hall, writes that he has been advised that a man representing himself as Ernest Cordingley is introducing himself in America as his brother. He requests that publication be given to the fact that he has no brother named Ernest, nor any relative in the United States.

The Boston & Amesbury Mfg. Co. is the name of a new company which has been organized for the manufacture of automobiles. The officers are: President, H. A. Spiller, of Boston; secretary, Robert G. Patten; treasurer, John Miller. The capital of the company is \$250,000. The manufactory will probably be located in Amesbury, Mass.

A. H. Funke, sole agent of the Kelecom motors and manufacturer of the Autolyte acetylene headlights for automobiles, announces his removal from 98 Duane street to 325 Broadway, New York. The new quarters are attractively fitted up, and a full line of motors, lamps, guns and rifles are being shown.

Harry W. Sumner, formerly with the Lunkenheimer company, expects to build high powered four-passenger vehicles at Cincinnati.

The Forskell Motor Co., Anderson, Ind., has been placed in the hands of a receiver on a petition of one of the stockholders.

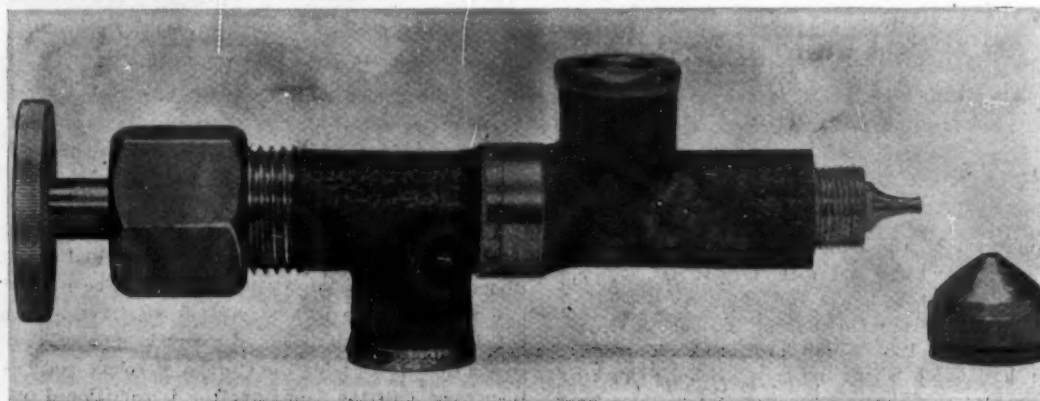
Winfield, Kas.—H. T. Trice has arranged to run a twelve-passenger bus line about the city and to nearby towns.

The Milwaukee Rubber Works is a new institution at Milwaukee and will make automobile tires.

Hydroleum Crude Oil Burner.

To say that anything new will "revolutionize an industry" at the present time is saying a good deal. The success claimed for the Hydroleum crude oil burner, made by the Hydroleum Motor Co., Ltd., of Willesden Junction, England, may nevertheless mean a revolution in the steam vehicle industry. The application of the Hydroleum system of burning crude oil economically and effectually has, it is claimed, solved a great problem. In the accompanying illustration are shown two inlets, that furthest from the nozzle being for the crude oil supply and the other being connected with the boiler for the supply of steam to the burner. The supply of oil is discharged from the center of the nozzle at atmospheric pressure from the reservoir, which has a float feed chamber, wherein the oil supply is regulated by a needle valve. From this float feed chamber the oil is drawn into the burner by the suction caused by the vacuum formed by the issuing steam.

The steam and oil issuing together from the nozzle are directed against a dash-brick of special size and shape, between an enveloping passage of refractory material. It is in the economy and use of the cheapest kind of fuel namely, crude petroleum products, that the Hydroleum system will appeal to the user and maker of the steam vehicle. The present cost of operating a steam car is estimated at from 3 to 4 cents per mile, while the use of this new burner will put the cost down to about 1 cent per mile.



HYDROLEUM CRUDE OIL BURNER.

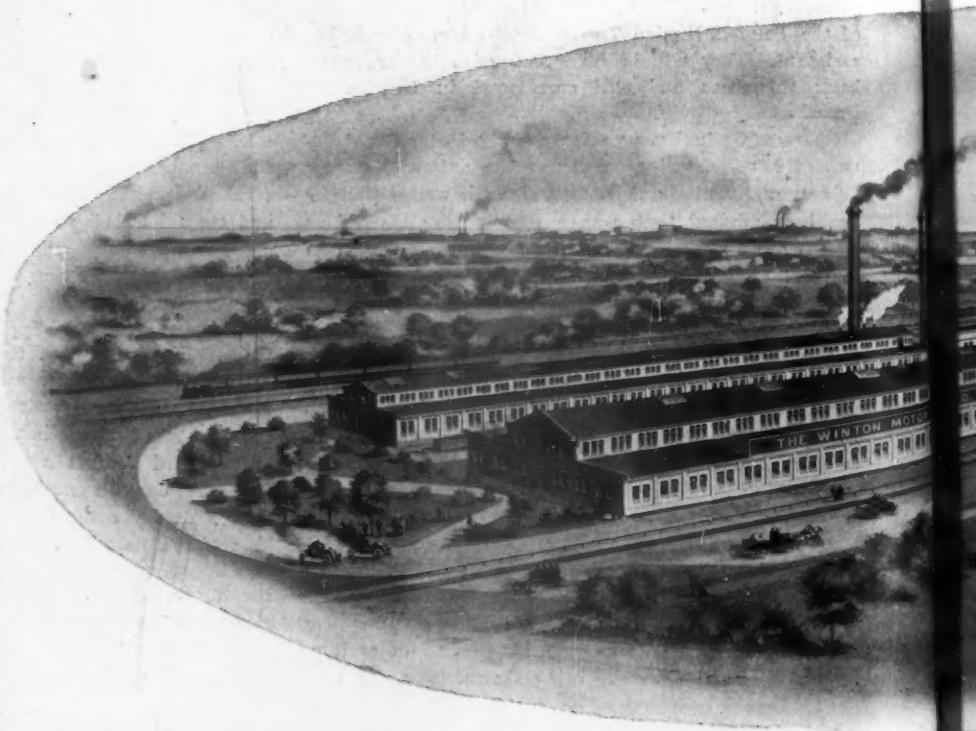
WINTON MOTOR CARRIAGE COMPANY'S GREAT PLANT

Cleveland, O., Oct. 22.—The largest and most complete automobile plant in the world is what the Winton Motor Carriage Co. claims for its magnificent new outfit of factory buildings, which the traveler on the flying trains of the famous Lake Shore railroad cannot miss seeing as he enters the city from the west, since the buildings adjoin the main tracks of this road for almost a quarter of a mile. To be exact the factory site has a frontage of 1,723 feet on the Lake Shore tracks with a somewhat greater frontage on the Berea road, the plant lying between the car lines of Detroit street and West Madison avenue, about 5 miles from the center of the city, in what promises to be one of the most important manufacturing districts of Cleveland. Surrounding the entire plant, just inside the big fence, is a half mile cinder track, well drained and banked and soon to be covered with trap rock concrete, which will make it adaptable to very high speed. This valuable adjunct to the plant will make it possible to thoroughly try all vehicles before they leave the factory; not a theoretic test, but practical speed work, which will bring out the weak points of a machine about as quickly as anything.

The only entrance to the big plant is through a small time keeper's building, where each employe "rings up" as he enters or leaves the factory. The bird's eye view of the plan presented herewith is not an exaggeration but was taken from an actual photograph secured from Mr. Winton's 100 mile an hour flying machine which may be brought out for 1904, if not before. The machine shop and erecting room is a building 300x100 feet with galleries at both ends. One whole side is devoted to machine tools of which there is a small forest, many of them being brand new and of the largest size. Among the most important tools are eighteen screw machines, eight of them just purchased from Bardons & Oliver, Cleveland; a Niles Tool Works horizontal boring mill; a Lucas horizontal boring mill; a Gisholt chucking lathe; five Brown & Sharp automatic gear cutters; four Dreses-Miller Co. radial drills, a Landes grinder and

about thirty ordinary lathes, some of them of the largest size.

The center of the main shop, which is used as the erecting room, is covered by two electric traveling cranes built by the Northern Engineering Works, Detroit, capable of carrying the heaviest machinery and castings from one end of the building to the other and depositing them in any desired position. The machine shop as well as the other buildings is furnished with power from gasoline engines patterned after the ma-



chines used in the standard Winton touring car. They are of the double cylinder type and develop about 60 horse power each. One of these is placed at each end of the machine shop and each takes care of half the line shaft, or the shafting can be connected so that one engine can carry the full load. The other wing of the machine shop is taken up with benches for the assembling of the machines. When the shop is in full operation both sides of the erecting shop will be lined with automobiles in various stages of construction, which will be run through in lots of a certain number at once. One corner is used for the storage of rough castings as they come into the shop; another is partitioned off for the tool room and a third corner is fitted up for the

office of Jacob Weidig, superintendent of the machine shop.

The large building opposite the erecting and machine shop is 400x100 feet. It is divided into stock room, tire department; paint, trimming shop; experimental room and carpenter and wood working shop. The latter is 100x100 feet and is separated from the other departments by a brick partition, the other partitions being of wood. The machinery in this shop consists of mortising machines, planers, bending machines and a sand paper machine; a unique and valuable device. In one corner of this shop is a Winton gasoline engine similar to those in the machine shop. Great care has been exercised in the designing of the finishing department; the paint and varnishing rooms being partitioned off so that

This room, and for that matter, every portion of the entire plant is exceptionally well lighted. One of the rooms is fitted up as a dark room, another is utilized as a blue print and photographer's room and still another is fitted up for the foreman of the drafting room. Adjoining the main drafting room is a bath and toilet room exclusively for those in this department, while leading from the main room is a vault for the storage of valuable drawings and blue prints.

The ground floor of this end of the building is fitted up conveniently for the general offices of the company. At present these are being utilized for this purpose, but within 2 or 3 months the company will have completed its fine salesroom and headquarters in the business district, and some of the offices will be removed there. It

is also the intention to do a large part of the repair work down there.

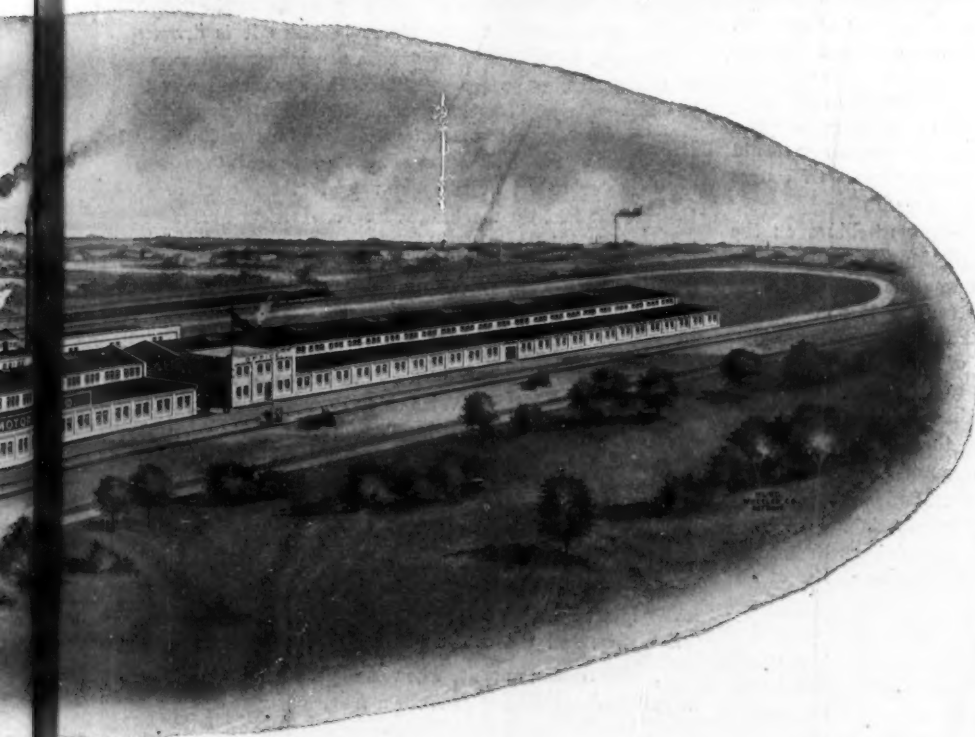
Near the entrance are private branch telephone exchange and telephone booths. The purchasing and publicity departments have a private office. Alexander Winton, president of the company, has a handsome private office in which he will sometimes dress up and entertain, but it is a safe guess that nine tenths of the time he will be found in his overalls in the department which is not open even to the most favored of visitors. Vice-President Henderson and Secretary Brown each have an office, and there is a corner divided off for a telegraph operator who will have both Western Union and Postal wires, an adjunct made necessary by the considerable distance from a branch office. Adjoining the main office is a toilet

room and large vault with safe inside.

The third of the larger group of buildings is 80x300 feet. It is divided into the power house, sheet and metal shop, foundry and forge shop. Steam for heating and operating pumps is furnished by two large Erie City boilers. To the right of this is the electric light plant and pumping outfit. The electrical outfit is very complete and was furnished by the Western Electric Co. It consists of switchboard and two lighting generators, each belted to Winton gasoline engines. A third engine of the same type operates a large blower which provides air for the gas plant, much gas being used in the furnaces in the brass and aluminum foundry, which occupies one section of the building mentioned. In the power room there is also a small steam engine

no dust can reach the parts while drying. The rubbing department has a brick floor, as much water is used in this work.

The experimental room is the one department which would not stand inspection. Mr. Shanks, who acted as guide to the MOTOR AGE man, stated he had his doubts about ever seeing the inside of it himself, and it is probable that only Mr. Winton and his most valued experts will be admitted to its sacred precincts. Hereafter if there are premature hints regarding new flyers they will have to come from some one very close to the throne. The pattern storage shop is at one end of this building over the carpenter shop. Adjoining this are a fine suite of rooms handsomely fitted up for the drafting force.



which operates pumps and supplies the impetus for starting the motors. The forge shop is supplied with two steam hammers and others are to be installed. The sheet metal shop is supplied with presses for producing stamped parts. Apart from the main group of buildings is the gas house which supplies the forges as well as the various gas engines in operation throughout the plant.

The company has used unusual precautions to avoid a disastrous fire. While the frame work of the various buildings is of wood, it being impossible to secure structural iron in the short time which the company required for completing the plant, yet there is little possibility of the entire plant being burned down, since the roofs are of fire proof material and the various buildings are sufficiently separated to make it improbable that fire would jump from one building to another. In the majority of cases, the various departments inside the buildings are separated by fire walls. Water pipes extend throughout all the buildings and there are coils of fire hose at intervals. The city pressure is quite strong, or if desired the pressure in the mains could be strengthened by the pumps in the plant. Of course watchmen are maintained at all times.

There were several very interesting machines on the floor of the main shop the day the MOTOR AGE man inspected the plant. One of them was the famous Bullet, and another the almost equally famous Pup, the name of which, by the way, Mr. Shanks credits or rather discredits to the inventive genius of your poor correspondent; then there was a Winton of the vintage of 1897; another the second machine built by Mr. Winton, the identical vehicle which startled the entire country by making a mile in 1:57; years ago it seems now; and last but not least interesting there was a 1903 model touring car about which friend Shanks is not yet prepared to go into fine details but concerning which, after much persuasion, he consented to discuss a few of the chief points.

The car will have a body and tonneau which it is claimed will be more comfortable than the seats in a Pullman. Comfort has been the paramount issue in the designing of this car. No less than a dozen experimental bodies were built by experts before Mr. Winton could find one which he considered comfortable enough for the cultivated connoisseur. The springs in the seats are larger than heretofore and the backs are higher and upholstered deeper. When one first sits down it reminds him strongly of the feather beds one slept "in" when a boy on the farm. The front seat is divided and the arm rests have a comfortable and convenient roll. The tonneau is larger than heretofore and the seats better adapted to long trips. There is a unique seat for a third person attached to the door; when the door opens the seat rises and when closed it is in position. To add to the comfort, the springs under the car are almost twice as long and twice as wide as heretofore. The wheel base of the car is 7 feet 6 inches or 6 inches longer than this year. The power of the motor is increased 25 per cent, being rated at 20 horsepower.

The hood is much changed in appearance, being narrower and much higher. The carburetor is improved and simplified and the tank capacity of both water and gasoline has been increased to give the car a radius of 250 miles without attention. There is an improved system of brakes, there being a new brake which operates on the inner face of the fly wheel and which acts in conjunction with the double brakes on the rear axle and differential. Incidentally it might be mentioned that the Winton people make no complaints when owners of their machines sometimes use the reverse for a quick stop. Out of 400 touring cars sold this year it has not been necessary to replace a single gear, although it is safe to say that all of them have been reversed at some time or another. Oiling is done by gravity to a float box from which the oil is fed by wicks to the gears and working parts; to the motor bearings it is drawn by suction. The radiating flanges are larger and more numerous, being square in shape. The steering wheel has a wood rim with brass arms, and the steering post is made heavier than heretofore, and has a double bearing. Under the new arrangement of the seats, it is much easier to get at the motor parts than heretofore. Despite the fact the machine is larger, stronger and more powerful in all its parts, the car is only a trifle heavier than this year's model, much unnecessary weight having been cut out through the refinements made possible by experience.

The five-mile handicap at St. Louis, open to the world, was a surprising race. With a heavy, muddy track, considerably broken by preceding horse races, the 800-pound Oldsmobile showed remarkable speed. Pitted against this little 4-horsepower runabout were some of the best types of the heavy 16-horsepower French and American racing machines. A delay of 2½ minutes, owing to a broken connecting wire, made no difference to the Oldsmobile, as it demonstrated its speed by winning the race easily. The second of the 5-mile events was open to all makes, and the Oldsmobile again won easily.

It sometimes happens, when the speed change gear on a gasoline automobile is thrown from a low to a higher gear, that the motor will suddenly slacken its speed or perhaps stop. This is due to the fact that the friction clutch has been thrown in too soon after the change in speed has been made, and too little time allowed for the motor to overcome the increased resistance of the car. The motor should be allowed to speed up during the change and the friction clutch should be thrown in gradually.

Chicago chauffeurs are organizing a union. They will refuse to wash wagons, but will consent to operate them and generally supervise all necessary repairs. For any service over eight hours a day they will demand extra pay. They expect to announce their programme in a few days. This, positively, is not a joke.

Mr. and Mrs. W. K. Vanderbilt, Jr., are reported to be planning an automobile trip from New York to 'Frisco. The story is probably a fairy tale.

BROKE THE RECORD

A Winton Touring Car, on October 15th, ran the 250-mile course between Boston and New York in the remarkable record time of less than 12 hours. The car won a perfect score and had the advantage of complete check by the control officials of the Automobile Club of America's New York-Boston-New York reliability run.

**The Performance Clipped Six Hours
.....From the Previous Best Record.....**

This car, owned by Mr. H. D. Corey, the well-known Boston banker, had just been released from the customs after completing a several thousand miles successful tour upon the European continent. It was a 15 H. P. car with standard 1902 equipment throughout.

The new Winton Touring Car will have a 20 H. P. motor and many other improvements which will insure its position upon the topmost round of the automobile ladder.

THE WINTON MOTOR CARRIAGE CO.

Factory and General Offices:
CLEVELAND, U. S. A.

Branches:
NEW YORK
BOSTON
CHICAGO
PHILADELPHIA

G & J TIRES

AND GOOD RESULTS

== GO HAND IN HAND ==

The usual enviable record was made by G & J TIRES in the New York-Boston Reliability Run.

The few punctures that occurred were repaired en route, thus demonstrating the practicability of emergency repairs on G & J TIRES. These punctures were the only accidents to G & J TIRES.

Seven cars entered the run equipped with G & J TIRES. Two discontinued, owing to slight mishaps to machinery. The remaining five finished creditably. :: :: :: :: :: ::

G & J TIRES

Are Strong, Fast, Reliable

G & J TIRE CO., - INDIANAPOLIS

Catechism of the Automobile Steam Engine and Boiler.

PART 5.

The steam supply from the boiler to the engine is controlled by some form of throttle valve, which, in connection with the link motion on the valve mechanism of the engine, controls the speed and power of the same. Figure 19 shows one type of throttle valve used for this purpose; the valve stem 37 has a cone or bevel seat valve 38 on its inner end, which regulates the flow of the steam through the valve seat 39. The steam inlet to the throttle valve chamber from the boiler is shown at 40 and the outlet to the engine at 41. When the valve is on its seat and the valve is closed, the steam pressure holds it shut, preventing any movement of the engine, unless the throttle is opened by the operator. The valve stem is made steam-tight by means of the stuffing box 42.

In case of accident or disarrangement of the pressure regulator, shown in Figure 18, which controls the steam pressure by regulating the size of the burner flame, a safety valve (figure 20) is attached to the boiler above the water line, so that if the steam pres-

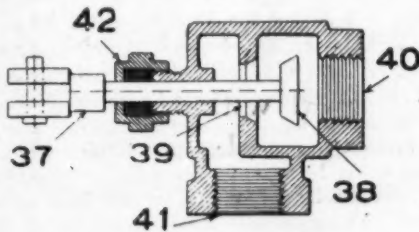


Fig. 19

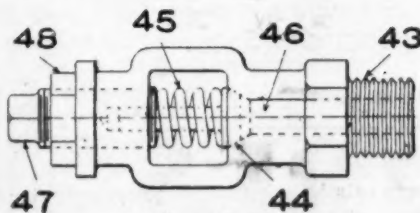


Fig. 20

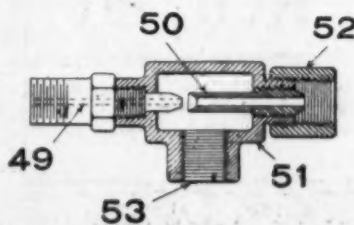
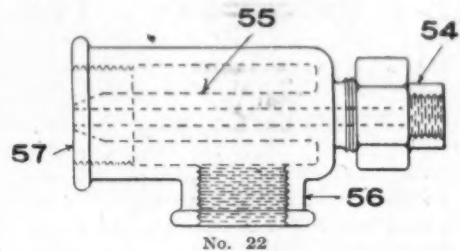


Fig. 21

sure should by any means exceed the desired limit the valve will allow the steam to escape and thus reduce the pressure to the desired or working limit.

The steam is in communication with the valve 44 through the opening 46 in the threaded stem 43. The valve 44 is kept upon its seat by means of the spring 45, which can be adjusted so that the valve will blow off at any desired pressure by means of the screw 47 and lock nut 48. The safety valve is usually set so that it will not operate until the boiler pressure has reached 2 or 3 pounds over the working limit.

One method of replenishing the water supply in the



No. 22

boiler is by means of an injector. This device is shown in figure 21. Its operation may be briefly described as follows: The steam enters the injector through the nozzle on the end of the threaded steam connection shown at 49. It then passes into the funnel shaped tube 50 in the injector body 51, and into the boiler through a check valve, which is attached between the boiler and the coupling 52. The velocity of the steam carries the water, which enters at 53, into the boiler through the funnel-shaped tube 50. With this style of injector the water supply must be located above the opening 53, as it has no lifting capacity, as have some other forms of injectors, but it is to be preferred to these other types on account of its simplicity.

The usual method of filling the water tanks of a steam vehicle, when a hose supply is not handy, is by means of a collapsible rubber bucket. As this involves a great loss of time and much trouble, a steam siphon has been put on the market to overcome the difficulty. Figure 22 shows one form of this siphon. The steam enters at 54 and the water connection is made at 56 to a length of hose with a strainer at its suction end. A similar hose is attached to the connection at 57, which is used to convey the water into the tanks. On steam being blown through the nozzle 55, a vacuum is formed in the suction pipe end at 56, whose lower end is in the water trough or other source of supply, and the water is thereby lifted into the siphon and discharged into the water tank. This form of water lifting device is sometimes known as an ejector, differing from an injector in the fact that it will lift water to a height of 12 or 15 feet readily, but will not force it into a tank or boiler under pressure, as in the case of the injector. The usual form of injector, on the other hand, will force water into a receptacle under pressure, but will not lift the water.

(To be Continued.)



THE CYCLE AGE

Brussels, Oct. 6.
—I went to Paris not with the expectation of seeing grand contests but simply to applaud once again the three greatest riders the world, in my estimation,

has ever produced in the sprinters' class. I did not mind the fact that the Princes track charged double the usual admission, yet I think it was a mistake, as there were hardly 8,000 people, whereas there would have been 20,000 or 25,000 if the admission had not been doubled. The event took place October 5 and it will remain as the most remarkable in the history of racing in the French capital. I don't want to say that the races were exceptional. On the contrary they were rather monotonous, but the true regard which the crowd showed for the three guests will never be forgotten.

Three heats, each over a course of 1,333 meters or two laps, were run. In the first Zimmerman took the lead and kept it until the bell. Then Jacquelin tried to get into the lead, but Zim prevented him. Entering the home stretch Bald crept up alongside Jacquelin, who in the meantime had taken the lead from Zimmy. Amid much cheering Bald and Jacquelin fought it out to the tape, where the American had a lead of about half a wheel. This result disappointed the crowd, which was in favor of its countryman. In the next heat much jockeying was done and Jacquelin fell. Bald waited for him, but Zimmerman, who was then leading, did not see the accident and continued, being hissed by the majority. The crowd went so far as to throw programs and newspapers. Jacquelin gave up, and then Bald set sail. After a chase which lasted until about 50 meters from the finish Eddy was right behind the leader and a minute later passed him, winning by one and a half lengths.

In the last heat there was no jockeying. Poor Zimmy was not in it at the sprint and again it resulted in a neck and neck fight between the Frenchman and the American. Bald again crossed the tape a winner by about half a wheel. This time a true ovation was given him who proved the best of the famous trio.

Let me add a word about Zimmerman. When he first arrived it was well understood that he was to give exhibitions only, and at that two only, for which, according to Mr. Batchelder's letter to the Velo, the foremost American was to receive \$500. After one exhibition he, with Bald, on a tandem, rode a match against Jacquelin

on a bicycle. This occurred last Sunday. Jacquelin won two straight heats. Zimmerman was in poor condition and has lost friends and diminished his grand reputation by letting himself into the combination of a smart track manager.

Another feature of this meeting was the 50 kilometers paced race between Elkes, Michael and Bouhours, a trio almost as great as the other. It was a healthy walk-over for Elkes, who had it all his own way, ending the 31 miles in the remarkable time of 41m. 48 2-5s. This, without the aid of wind shields, is as good a performance as any of the distances covered by Robl, Linton or Michael. Bouhours was second at 12 laps and Michael another lap behind. I am sure that neither of the two rode in their best form, yet I believe Elkes to be the better.

Progress of A. B. C. Affairs.

At 12 o'clock last Saturday the receivers appointed by Judge Kohlsaas to take charge of the affairs of the American Cycle Mfg. Co. in Chicago, after Messrs. Pope, Coleman and Miller had been appointed by an eastern court, turned over the affairs of the company to a representative of the original receivers and retired from the scene. R. L. Coleman, who had been in Chicago several days, trying to untie some of the knots, left for New York without loss of time, but it is understood that before so doing he placed orders for a large supply of parts, the details, of course, having been arranged in advance. An announcement was made to the effect that arrangements had been made to pay all pressing claims.

The United States District Court at Trenton, N. J. has granted permission to the receivers to issue \$500,000 worth of receivers' certificates and it is understood that the money has been secured.

The stockholders in attendance at the annual meeting called for Oct. 14 at Jersey City did not constitute a quorum but adjourned subject to a call of any stockholder.

Arrangements have been made to properly finance the cycle manufacturing part of the business and work will commence promptly.

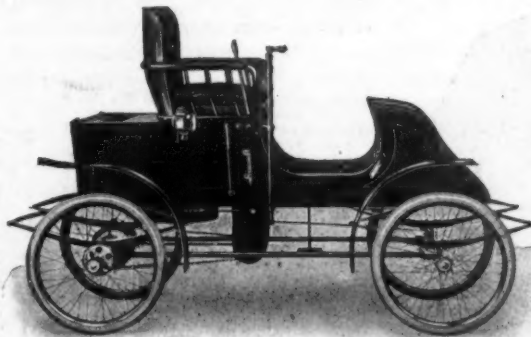
Annual Banquet of Cycle Traders.

San Francisco, Cal., Oct. 17.—"For the ninth annual time, fellow citizens, we are again together to eat, drink and be merry." This was the opening remark of a great speech delivered two nights ago by Joseph Holle when, as president of the San Francisco Cycle Board of Trade, he had gaveled to order the large assembly of automobile and bicycle dealers.

The occasion was the ninth annual banquet of the

A PERFECT SCORE

IS THE
RECORD
OF THE



In the
New York
and Boston
Reliability
Run

PRESCOTT STEAM CAR

ONLY ONE ENTERED

No Stops Between Controls. Not a nut or bolt had to be touched. No Tire Troubles - (Fisk Tires.) PASSED EVERYTHING ON ALL HILLS. The same car won certificates in the 100 mile endurance test of the L. I. A. C. and A. C. A. :: :: :: Did the mile at Staten Island in 1:37 and one-fifth. In a 16 day tour of New England covered 2023 miles without cost for repairs. :: :: :: :: ::

HAS BEEN DRIVEN OVER 6000 MILES THIS SEASON.

It is a regular Stock Car. Prescotts are all alike. Our knowledge of the Reliability of the PRESCOTT made it unnecessary to enter but one to demonstrate our claims. Send for Catalogue and Official Report of Test.

Prescott Automobile Mfg. Co.
83 CHAMBERS STREET NEW YORK

Agents will be appointed in unoccupied Territory.



THE OLDSMOBILE

**Blue Ribbon Winners Chicago Endurance Run
The Oldsmobile in the Front Ranks**

Conclusively demonstrating its staying powers and ability to travel rough roads, with a minimum consumption of gasoline. Why spend thousands for a ponderous racer when you are unable to buy a better or more reliable vehicle at any price?

PRICE \$650.00 F. O. B. DETROIT.

SELLING AGENTS:

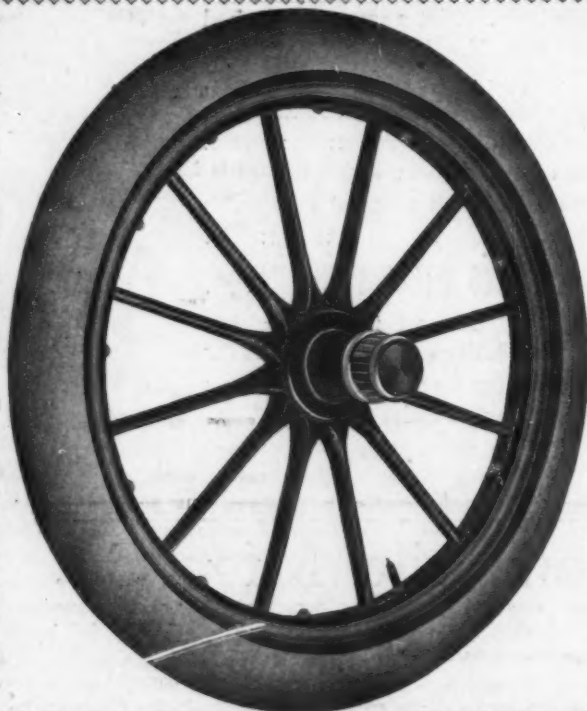
Oldsmobile Co., 122 W. 25th St., New York City.
Oldsmobile Co., 1124 Connecticut Ave., Washington, D. C.
Quaker City Automobile Co., 133 N. Broad St., Philadelphia, Pa.
H. B. Shattuck & Son, 239 Columbus Ave., Boston, Mass.
Banker Bros. Co., East End, Pittsburgh, Pa.
Oldsmobile Co., 411 Euclid Ave., Cleveland, O.
W. E. Metzger, Detroit, Mich.
Mississippi Valley Automobile Company, St. Louis, Mo.
Fisher Automobile Co., Indianapolis, Ind.
Olds Gasoline Engine Works, Omaha, Neb.
W. C. Jaynes Automobile Co., 872 Main St., Buffalo, N. Y.
Day Automobile Co., Kansas City, Mo.

George Hannan, 1455 California St., Denver, Col.
Clark & Hawkins, Houston, Tex.
Hyslop Bros., Toronto, Canada.
Manufacturers' Co., 26 Fremont St., San Francisco, Cal.
A. F. Chase & Co., 215 Third St., Minneapolis, Minn.
Oldsmobile Co., 728 National Ave., Milwaukee, Wis.
Rochester Automobile Co., Rochester, N. Y.
F. E. Gilbert, Jacksonville, Fla.
Texas Imp. & Mach. Co., Dallas, Tex.
Abbott Cycle Co., New Orleans, La.
C. H. Johnson, Atlanta.
Sutcliffe & Co., Louisville, Ky.
Brown-Thompson & Co., Hartford, Conn.
Mason's Carriage Works, Davenport, Iowa.

OLDS MOTOR WORKS,

50 CONCORD AV.,

DETROIT, MICH., U. S. A.



WE BUILD WHEELS ONLY BUT WE BUILD THEM WELL

This is an age of specialties, and we are determined to be at the head of our special line.

That's Why The Midgley

Tubular Steel Wheels

are commanding attention from automobile builders and owners, not only in the United States, but in foreign countries as well. Is it any wonder that our present fairly large plant has become too small, and a new brick three-story addition is to be built? And there is more land for further additions, as we earnestly believe that inside of two years will find us expanding some more.

THE MIDGLEY TUBULAR STEEL WHEELS

are setting the pace for beauty, speed, stability and economy. It is stronger than any other wheel, eight times as light for weight, and what is important, is guaranteed for one year. We give you a wheel free if you break a Midgley in any fair test. Send for testimonials and other literature about the Midgley Wheel.

THE MIDGLEY MFG. CO.
Columbus, Ohio.

Western Selling Agent:

K. FRANKLIN PETERSON,
165 Lake St., Chicago.

Eastern Selling Agent:

THOMAS J. WETZEL,
50 Warren St., New York.

organization, although in explanation of the liberal attendance of autoists it was generally regarded as a sort of aftermath incidental to the notable successes that have attended the several sport events recently given jointly by cyclists and autoists under the management of the Cycle Board of Trade. It was the most elaborate affair of its kind in the history of the association, and due acknowledgment was extended for the extra well done part performed by Jules Whitman as proprietor of the up to date Jules' Rotisserie, the choice place where the banqueters met. The table decorations consisted of huge bouquets of white and gold chrysanthemums, loose cut flowers and maidenhair fern, and while the banquet was in progress an orchestra filled the air with melody.

Since the organization of the Cycle Board of Trade in this city 9 years ago nearly every large town in California has formed a local board, affiliated with the state organization, which was brought into existence last year. The object of the Cycle Board of Trade is to promote harmony and encourage sympathetic business methods among the bicycle dealers throughout the state, and right well has this object been achieved.

It would be unfair to close this banquet report with the one solitary Holle reference as having made a great speech. There were others, a lot of them, and all great, severally launched in response to Toastmaster Holle's call in the order in which the orators' names are hereto attached:

F. N. Bent, I. P. Allen, Phil Bekeart, E. E. Stoddard, Edwin Mohrig (this gem of a speech was read by Gus Hobson, Mr. Mohrig having left for the east during the afternoon), W. H. Nash, A. H. Coats, W. Fuller, J. T. Bill, Geo. A. Morrill, E. W. Payton, J. W. Kinny, J. Fames, J. W. Cornell, W. M. Gibson, C. E. Baker, John Curtiss, James McIntyre, D. J. Markowitz, L. C. Block, J. M. Miller, A. W. Barton, W. W. Whiting, A. N. Balingier, T. J. Nelson, Leon Zolinsky, E. K. Anderson, R. D. Allinger, Jr., Howard Herring, W. Partman and J. S. Trask.

Sunday's Racing at Vailsburg.

Newark, Oct. 19.—Six crack professionals were segregated so well into three equal pairs that the mile heat team race at Vailsburg this afternoon furnished one of the best contests of the season. Kramer was paired with Owen Kimble, Floyd McFarland with Iver Lawson and George Collets with Willie Fenn. These teams raced three heats of a mile each. The leader of each team scored instead of points being gained by both members.

Kimble started the sprint in the first heat and held the lead until the last turn, where he was passed by McFarland, with Lawson in tow. Kramer had got into a pocket early in the last lap. When he got loose in the stretch he could only get within a length of Lawson, the winner of the heat, in 2m. 19 3-5s.

Collett made a clever runaway of the second heat in 2m. 16s. by the length of the stretch through a jump in the first gap. The crowd howled its disapproval for several minutes, when the judges gave the second place

to Kramer instead of Lawson in a close finish, in which it looked to outsiders that the Salt Lake City flyer had won by 18 inches.

Fenn went to the front in the third heat followed by Collett, who led into the stretch. Here he was passed by both McFarland and Kramer. The Californian clearly outsprinted the champion and gave him a laugh as he beat him by a length in 2m. 20s. As a result of these heats the McFarland-Lawson team won first money, the Collett-Fenn second and the Kramer-Kimble third. The purse was \$250, divided.

The crowd had occasion also to disapprove of the placing of the first two men in the 5-mile amateur open. E. F. Root got the decision over Billington. Outsiders thought the latter had come through on the pole and won. Sam Sulkins, of Boston, was third. The time was 11m. 55s.

The two-thirds mile handicap was framed for a record, but Root and Billington, the scratch men, were unequal to the task. The long markers made a runaway of it, Goodman (90) winning in 1m. 19 1-5s., with Spain (105) second and Robert Meyer (75) third.

The annual farce comedy, a mile handicap for the track employees, produced the accustomed merriment. Toby De Vries (scratch) won in 2m. 42s., with Joe Schoeninger (40) second and G. J. Abienste (60) third. Al Roberts carried the target and the booby prize that went with it. There were 3,000 spectators.

Automobiles and Cycles in France.

Statistics just published in Paris show that in 1901 a total number of 5,386 automobiles, representing 26,427 horsepower, paid \$84,209 into the French Treasury Department. Out of this total Paris alone possessed 1,149, having 6,889 horsepower, and paid \$24,943. Of the 1,149 vehicles in Paris 751 had more than two seats and 398 had one or two. The rest of France is represented by 2,142 having two or more seats and 2,095 with one or two. The average tax per vehicle was \$15 and the average per horsepower \$3. During 1901 the total number of bicycles which were taxed numbered 1,106,768, for which \$1,258,680 in taxes was paid. In 1900 only \$987,130 bicycles paid taxes, while the previous year the number was 838,856. In 1898 the number was only 483,414.

Late European Racing.

There seems to be a belief among many spectators that some of the sudden stops of motor bicycles and tandems are not entirely due to a real accident, but are "special agreement" accidents. The one hour paced race between Michael, Robl, Ryser and Dickentmann on the Friedenau track, Berlin, Sept. 28, deceived the large crowd. Fully 10,000 people had braved the chilly weather. Repeated accidents to the motors made the end a monotonous affair. Michael took the lead and held it for the first half hour. Then Fournier, who was pacing, fell, while Jimmy barely escaped. The little fellow had lost two laps. During this time Robl stole two laps and it became a walkover for him. During the last few minutes

Michael somewhat livened up the freezing spectators by making a final effort, but the best he could do was to gain three-quarters of a lap. Robl won, covering 43 1-3 miles in the hour.

There was general rejoicing at the conclusion of the Grand Prix of Dortmund, Germany, on Sept. 28, when Willie Arend won the fat end of the purse from Ellegaard and Vanden Born. Some 8,000 enthusiasts saw the contest. Three heats were run, which the old German won respectively by four, one-half and three-quarters of a length. The Dane was second in two of the heats.

Following the idea of the A. B. C.'s Paris manager, who organized a meeting exclusively for riders riding A. B. C.'s makes, the Peugeot manufacturers organized a similar meeting at Rennes on the 28th. A large, fashionable crowd gathered. Meyers won the principal event from Grogna and Momo.

Houben, the Belgian rider, who defeated Zimmerman years ago, will again try the racing game after an absence of about three years. He is very anxious to again meet Jimmy before he leaves Paris.

Huret and Linton Permanently Injured.

The latest reports relative to Tom Linton, who recently fell in Paris, say that the hip socket was broken, and in all probability Tom will never walk again. He certainly will not do any more riding. Huret sustained a similar injury in his race with Jimmy Michael at Parc des Princes and he has ridden a bicycle for the last time. In this race Jimmy Michael generously donated his share of the purse to a benefit for Huret.

Wonderful Motor Bicycle.

At the recent Chateau-Thierry hill climbing contests in France, a motor bicycle made by M. Georgia Knap, at Troyes, ascended the grade at a speed of nearly 19 miles per hour. The motor is coupled directly to the rear wheel of the machine, thus dispensing with chains or belts or pedals. It is said that 90 per cent of the energy of the motor is utilized at the rim of the wheel by this method of construction. Other bicycle motors from 2 to 3 horsepower, and whose operators pedalled their hardest, were compelled to give up.

Another Wonderful Electric Automobile.

M. Marconi, the inventor of wireless telegraphy, is said to have designed an electric automobile, which is now being built at Leghorn, Italy. It is to have a speed of from 35 to 40 miles per hour, with four sets of batteries weighing only 250 pounds, which are claimed to have a running capacity of 560 miles.

The annual 6 day race takes place at Madison Square Garden, New York, the second week in December. It is expected that Harry Elkes, when he returns from Europe, will have with him a number of French and German riders. It is not expected that Elkes will be a competitor in the 6 day race, but he and Jimmy Michael will meet the Saturday night before the race starts.

Rumor has it that already three American teams have been formed. They are McFarland and Walthour, Maya and Wilson, and Stinson and Nat Butler.

Lawson won the first heat of the three-cornered match race by a length. Kramer was pocketed. The second heat was given to Kramer, much to the displeasure of the crowd. In the third heat McFarland defeated Kramer in handy fashion. The champion was not at his best. Lawson and McFarland teamed and as each won a heat they won first prize.

W. C. Rands & Co., of Detroit, having recently disposed of part of the stock carried over, have been reported to have sold out their bicycle business. This story is quite untrue. Mr. Rands writes that he expects to continue in the business as long as the cycle trade remains as profitable as it is at present.

A few of the local motorcyclists organized the Springfield (Mass.) Motor Cycle Club. The officers elected are as follows: Captain, W. H. McConaghy; first lieutenant, F. W. M. Robinson; second lieutenant, J. H. Ohde; clerk, A. H. Buck.

LaCrosse, Wis.—Papers of incorporation have been drawn up for a new automobile, transportation and transfer company, which will run an automobile livery from the north to the south side to LaCrescent and other suburban points.

Worthy & Co. are promoting a new automobile company in Detroit and it is said will file articles of incorporation in a few days. Dr. J. B. Book and W. D. Simons are among those interested in the company.

It may be interesting to learn that during the evolution of the bicycling industry no less than 7,573 patents have been allowed in the United States alone on bicycles and their component parts.

The Cyclists' Touring Club, which is to England what the League of American Wheelmen was to America, still has a membership exceeding 45,000. Its high water mark was 60,449, in 1899.

The Standard Optical Co., of Geneva, N. Y., contemplates the manufacture of automobile parts.

Proverbs of the Automobilist.

He that trusteth his automobile to the care of a hired man shall come quickly to grief; but he that careth for it himself shall flourish like a branch.

A wise man feareth and departeth from crowded streets; but the fool cryeth "Seelah!" and gets in the middle of the push and is confident.

A righteous man regardeth the life of his carriage; but the tender mercies of the scorcher are small and far between.

He that is void of wisdom criticises his neighbor's vehicle, but a man of understanding holdeth his peace.

It is better to ride alone in a trolley car than with a nervous woman in a brass trimmed speed car.

A smooth road maketh a cheerful countenance; but by a rough one are repairers made glad.

When scorching cometh, then cometh shame; but with the careful rider is wisdom.

The fool rejoiceth in his speed; but the wise man looketh well to his going.—Detroit Free Press.

Punctuality begets success. The Elmore keeps its engagements

In the New York-Boston and Return Reliability Run

TWO ELMORES

were entered—B37 and B38—and both arrived at, and departed from, every control on time. Nothing occurred en route which would have worried the most exacting tourist. ❀ ❀ ❀ ❀ ❀ ❀ ❀

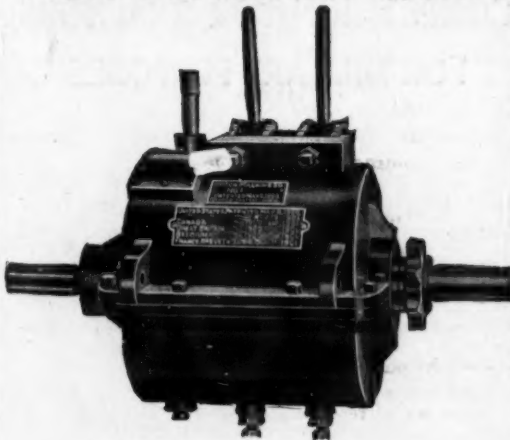
The NEW ELMORE, MODEL 6, has a Vertical Double Cylinder Motor; Speed Controlled by Throttle; Three Forward Speeds and Reverse. ❀ ❀ ❀

It would pay you to investigate a machine of such proved reliability with a view to handling it in your territory.

ELMORE MFG. CO.

CLYDE, OHIO

TRANSMISSION GEAR.



**TWO SPEEDS FORWARD
AND A REVERSE**

ALL GEARS RUNNING IN OIL

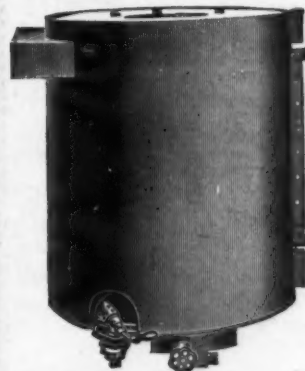
UPTON MACHINE CO.

WORKS AT BEVERLY, MASS.

Address all communications to the Works, Beverly, Mass.

**SOME OF THE MANY
ADVANTAGES OF THE**

Salamandrine!



**Quickest Steamer.
Accumulates Steam
On Hills. ❀ ❀ ❀ ❀
Cannot Burn Out.
Safe and Reliable.**

Send for New Descriptive Pamphlet, Describing Its
Remarkable Steaming Qualities.

SALAMANDRINE BOILER COMPANY,

220 BROADWAY, NEW YORK.

WORKS: NEWARK, N. J., U. S. A.

New York-Boston and Return

Two Darracq's Started
Two Darracq's Finished

Darracq Passengers Did Not
Have to Walk



Climbed All Hills Including Foster
and Spencer Terrors

DARRACQ NO. B44 WAS ONE OF THE
FIRST FOUR CARS TO REACH THE
FINAL CONTROL

DARRACQ B21, HAROLD H. BROWN,
MADE A PERFECT SCORE

AMERICAN DARRACQ AUTOMOBILE
COMPANY,

652 Hudson Street, - - NEW YORK
F. A. LAROCHE, Sales Manager.

THE KELECOM MOTOR Always Reliable

IN THE NEW YORK-BOSTON CONTEST
AN AUTOMOBILE WITH A 11 H. P.
KELECOM MOTOR WENT THROUGH
WITHOUT A SINGLE ENGINE TROUBLE

Made in 1 1/4, 2 1/4, 5, 7, 9 and 11 horse
power. Perfect records here and abroad.
Send for descriptive matter. :: :: ::

A. H. FUNKE
98 Duane Street, NEW YORK

WAR OFFICE COMPETITION FOR TRACTORS FOR MILITARY PURPOSES

The Competition for Tractors for Military purposes, which was announced for the spring of 1903, will be postponed until the month of October, 1903.

Intending competitors should apply on the 1st October, 1902, for forms of entry for this competition to the

SECRETARY, MECHANICAL
TRANSPORT COMMITTEE,
War Office, Horse Guards,
Whitehall, s. w., London

These forms must be completed and returned to the Secretary, Mechanical Transport Committee not later than 1st January, 1903.

THE DIAMOND DETACHABLE DOUBLE TUBE TIRES



THE SUPERIORITY OF
DIAMOND
SINGLE TUBE TIRES
WILL BE FOUND IN THE
DIAMOND DOUBLE TUBE
DETACHABLE
MADE IN AKRON, OHIO, BY THE
Diamond Rubber Co.

BRANCHES:

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PHILADELPHIA: 435 N. Broad
WASHINGTON: 812 Fourteenth St.
CHICAGO: 429-431 Wabash Ave.
DETROIT: 310 Woodward Ave.
SAN FRANCISCO: 8 Beale St.
DENVER: 1655 Blake St.
CLEVELAND: 411 Euclid Ave.
ST. LOUIS: 914-918 North Second St.



\$1100 FOR A "BOSTON MODEL"
OF THE FAMOUS

**"RIGS
THAT
RUN"**

is the best proposition in the automobile line. If you
haven't seen one and don't know why, just
ASK US.

ST. LOUIS MOTOR CARRIAGE CO.

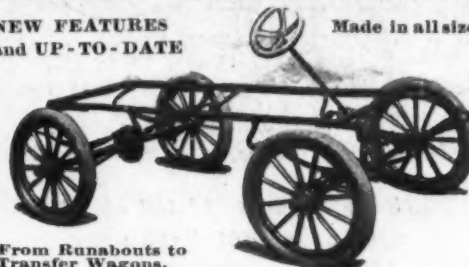
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ST. LOUIS, MO.

OUR REACHLESS RUNNING GEAR

NEW FEATURES
and UP-TO-DATE

Made in all sizes,



From Runabouts to
Transfer Wagons.

NEUSTADT-PERRY CO., St. Louis, Mo.

Highest Award Pan-American Exp. 1902

20th CENTURY HEAD-LIGHTS
FOR BICYCLES, CARRIAGES, AUTOMOBILES, YACHTS, MINES, HUNTING & ETC.
AND AS HIGH-CLASS HAND-LANTERNS.



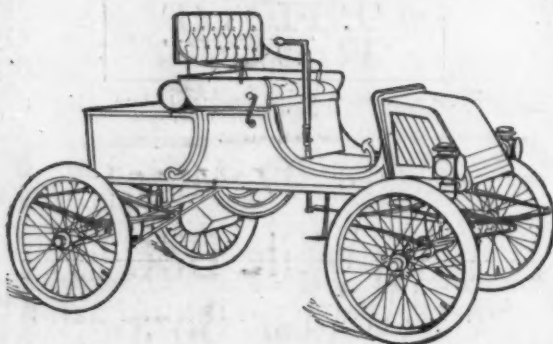
BICYCLE GAS. AUTO OIL. MINERS GAS. AUTO HAND-LANTERN GAS. AUTO OIL. BICYCLE OIL.
STYLE B. STYLE A.

.....1902 CATALOGUE.....
20th CENTURY MFG. CO., - 17 Warren St., N. Y.

A
**Blue
Ribbon**
for
Every Entry

in the New York-Boston Endurance Run is a proud record. The

Rambler



*earned them, again proving
itself the equal of the \$1500
kind at one-third the price.
Shall we send you Catalogue
M-A? If you want to get in
line for our 1903 agency;
better write soon. . . .*

Thomas B. Jeffery & Co.
Kenosha, Wis.

ANOTHER
Steam Victory

THE RED, WHITE AND BLUE

GROUT
Steam Cars

Were in the lead throughout the reliability run from New York to Boston and return. Note the percentage of steam vehicles in the non-stop winners. . . .

19 STARTED
18 FINISHED

The Grouts are Blue Ribbon Winners

Two vehicles went the entire distance without a stop of any kind. One with only a five minutes' delay, to adjust water glass. . . .

Watch ^{for} the Official Records.

The 1903 Grout Tonneaus and Two-Seated Touring Cars ready. We are ready to appoint agents in unoccupied territory for 1903.

GROUT BROS.
ORANGE, . . MASS.



Above Machine fitted with Single Cylinder, 5 1/2 x 6 Engine. Tonneau detachable

THE LEADING
AUTO PARTS

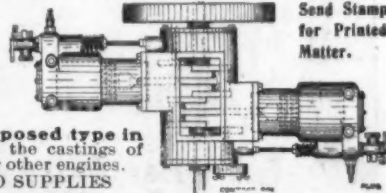
DYKE MANUFACTURER
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CASTINGS and PARTS to build this machine, or **PARTS FINISHED** ready for assembling. Have you read about the trip with one of our No. 1 Outfits? Write our customers what they think of them. Dyke makes **Radiators, Carbureters, Pumps, Running Gears, Engines**, and handles and carries in stock **everything in the auto supply line**. Get his new Catalogue and Supplement.

We make this opposed type in two sizes. Also sell the castings of these two sizes, and our other engines.

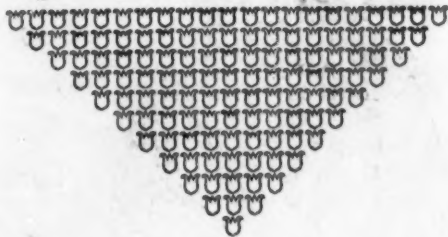
FULL LINE AUTO SUPPLIES

A. L. DYKE, 1402 Pine Street, ST. LOUIS, MO.
(Originator of the First Auto Supply Business in America.)



Send Stamp
for Printed
Matter.

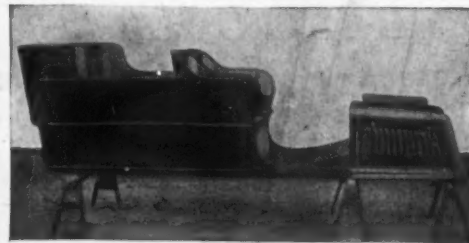
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TIRES**



Write Us for Information.

Made by the

Boston Woven Hose & Rubber Co.
Boston, Massachusetts.



ALUMINUM

**Automobile Bodies,
Fenders and Bonnets**

*BUILT and
REPAIRED*

J. M. QUINBY & CO.

Carriage Builders

NEWARK, N. J.

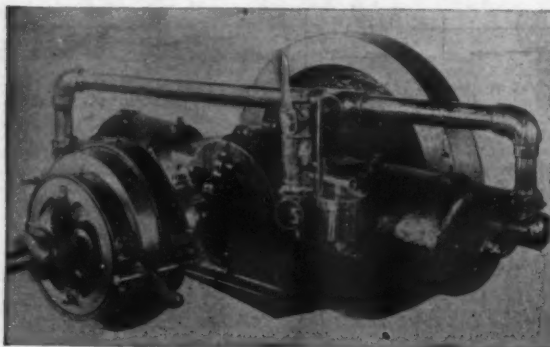


THE ORIENT RUNABOUT

8-Horse Power; weight 1000 lbs.; price \$875.

*Powerful and Reliable.
Speed Over 30 Miles per Hour.
Will Climb Grades of 30 per cent.
Write for Catalogue
And Agents' Terms.
Can Fill Orders Promptly.*

WALTHAM MFG. CO.,
WALTHAM, MASS.



BRENNAN STANDARD GASOLINE MOTORS

Manufactured in sizes from 4 to 30 H. P.

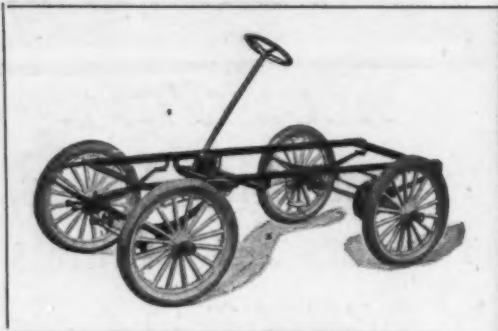
They are perfectly balanced, smooth running, will save wear and tear on your auto. Referring to speed, our 6 H. P. will develop its rated power at 650 revs. per minute, and 9 H. P. on high speed. Our 8 H. P. will develop its rated power at 750 revs. per minute; will develop 12 H. P. on high speed. Guaranteed to give satisfactory results or money refunded.

Special 15 and 20 H. P., with Transmission Gear.

Brennan Motor Co., SYRACUSE, N. Y.

BRECHT'S Reachless Angle Iron Frame RUNNING GEAR

Constructed on Scientific Principles.



SEE OUR NEW
Combination Hanger, Radius Rod & Swing Shackle.
ARTILLERY WHEELS A SPECIALTY.
Automobile Parts and Running Gears Built to Order

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1203 Cass Ave. - ST. LOUIS, MO.

American Tubular STEEL WHEELS



Neat
Strong
Durable

Will Not
Shrink
Swell
or Warp

Write Us

AMERICAN TUBULAR WHEEL CO.
591 PENN. AVE. PITTSBURG, PA.



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Patented March 4, 1903

You Have an Object

in view, when building an Automobile

You Need a Clutch & A Good Clutch

How Long
Do You
Wish to
Wait for it
?

WE MAKE AND DELIVER the best and most accurately made Clutch—The Champion, in standard sizes, on receipt of order, and special—various sized shafts and sprockets—in from one week to ten days' time. Accurate machines, tools, jigs, etc., in the hands of skilled workmen, produce the above results. Inspection and comparisons invited.

THE CHAMPION MANUFACTURING CO.
479 HANCOCK STREET. - - BROOKLYN, N. Y.

Sales Agents:
P. J. DASEY CO., 19 & 21 LaSalle St., Chicago. A. L. DYKE, 1402 Pine St., St. Louis

WHEN ORDERING AN AUTOMOBILE SPECIFY THE "Exide" BATTERY

NEW YORK, 148 West 18th street,
PHILADELPHIA, 250 N. Broad street,
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EXIDE BATTERY DEPOTS
For Furnishing, Charging and Caring
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CHICAGO, 264 Michigan Boulevard
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THE ELECTRIC STORAGE BATTERY CO. PHILADELPHIA.

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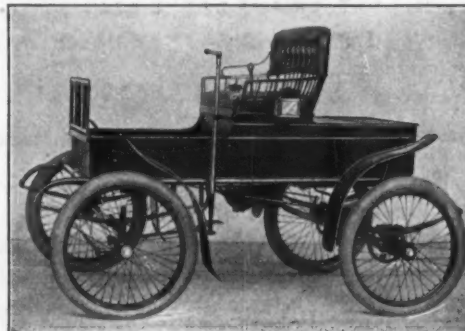
"BE-NO-CA" (Trade Mark.) Known to the trade as the **Beasley Elastic Tire**



Built on the truss principle, it's strong and the strain is equally distributed.
Ample resilient yet defies destruction or disabling by puncture.
Can be used until completely worn out.

Standard Anti-Friction Equipment Co.,
No. 50 Broadway, NEW YORK CITY.

STUDEBAKER AUTOMOBILES



A NEW electric vehicle, showing radical departures in many essential features. The battery consists of 24 cells, carried in the rear of the body compartment. The motor is rigidly suspended from frame of the gear, just in front of the battery. The battery will give a run of 40 miles on one charge, and can be recharged from any 110 volts direct current lighting circuit. In the severe test made last year, no breaks have occurred in running gear. It is a vehicle made for everyday use on country roads or city streets.

Send for illustrated booklet.

STUDEBAKER BROS. MFG. COMPANY

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Factory and Executive Office, SOUTH BEND, IND.



Style "F" Type 6.

Slide Gears. Governed Motors.
Easy to Operate. Strong and Durable.
Correspondence Solicited.

THE PEERLESS MFG. COMPANY
Lisbon Street, CLEVELAND, O.

NOW READY

1903 PEERLESS TOURING CAR

Thoroughly Up-To-Date. American Build Throughout.
Embodying Best French Improvements.

BANKER BROTHERS COMPANY—
Agents for Pennsylvania.

PITTSBURG—Baum and Beatty
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315 CLINTON ST., CHICAGO, ILL.

MAKERS OF

HIGH GRADE SPRINGS FOR MOTOR VEHICLES.

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Advertisements under this head 5 cents per word first insertion; 3 words per word each insertion thereafter. Cash with order. Express orders, postoffice orders or stamps received.

FOR SALE—Milwaukee Runabout; jump seat; steam air and water pumps. Run 2,500 miles. Will demonstrate to satisfaction of purchasers its perfect condition. \$300.00. O. A. Chappell, Elgin, Ill. 17

FOR SALE—This year's Rambler. First-class condition. Elegant runner. J. H. HUNTLEY, Lima, Ohio. -17

FOR SALE—Winton Touring Car in A-1 condition. Used three months. C. R. Wilson, 42 River St., Chicago. 18

SITUATION WANTED—By experienced man on steam, gasoline and electric automobiles. Address Manager, Care MOTOR AGE. 17

FOR SALE—One 1902 Friedman, 6 h. p. double cylinder gasoline automobile, used three months, in A-1 condition, \$400.00. One 1902 Spaulding, 5 h. p. single cylinder gasoline automobile, \$400.00. Northwestern Motor Vehicle Co., 112 S. Sixth St., Minneapolis, Minn. 17

BARGAINS—Two Demonstrating Holley Motor Bicycles, used very little, guaranteed to be exactly as good as new, perfect condition. Price \$125.00 each, cash with order. Holley Motor Co., Bradford, Pa. 20

TO TRADE—Race horse, sulkey and trappings for double-seated auto. F. E. Encell, 940 334 Dearborn St., Chicago.

JUST RECEIVED—A carload of Murray gasoline runabouts; handsome in appearance; equal in power, speed and endurance to machines costing twice as much; will make very interesting prices. See them. Mead Cycle Co., 1243-5 Wabash Ave. 18

DO YOU WANT TO SELL YOUR AUTOMOBILE? We will buy it for cash at our price, or sell on commission at your price; best facilities and largest auto. storeroom in Chicago. Mead Cycle Co., 1243-5 Wabash Ave. 18

FOR SALE—Steam automobile specially built, best workmanship and materials, cost \$1,000. Elegant Stanhope body, hand buffed leather top and trimmings, long wheel base, three inch new pneumatics, perfect condition, all complete and practical, except three-cylinder single acting engine (Serpellet type) which proved unequal to service demanded. By reason of this error in designing will sell for \$300. Room 910 Tribune Building, Chicago. 18

FOR SALE—Specially built three cylinder, 12 h. p. gasoline automobile, large, well designed, Stanhope body, long wheel base, three inch pneumatic tires, close best leather top and trimmings, newly painted, in perfect order; two speeds, forward and reverse; lubrication by McCanna automatic pump, forced water circulation; run less than five hundred miles; engine starts easily and surely; speed, three to thirty miles; works almost noiselessly on high gear. Cost to build \$1,750; will sell for \$700 and guarantee as stated. 717 Virginia Hotel, Chicago. 18

FOR SALE.—1 Haynes-Apperson tonneau touring car (rebuilt); 12 h. p.; car weighs 1,650 lbs.; resembles Winton car; 34x4 tires; a beauty; fast and powerful and guaranteed in every way. Price, \$1,600. Get photo and particulars. 1 Fournier Searchmount, 12 h. p.; new in April; price, \$800. 1 Locomobile, complete, \$450; 1 Mobile, complete, \$500; 1 Locomobile, complete, \$375; 2 steam surreys, complete, \$800; 1 Waverly, complete, \$460; 1 Waverly, new, \$680; and others. Get our list. Fisher Automobile Co., Indianapolis, Ind.

FOR SALE—Cheap—Dynamos and Motors, standard makes, all guaranteed; reliable repair work. Schureman & Hayden, 139 S. Clinton street, Chicago. Telephone 1648 Main. 17

FOR SALE—Electric delivery wagon, good condition, at very low price. SCHURMAN & HAYDEN, 137-139 S. Clinton St., Chicago.

WANTED—Live business man with \$5,000 to invest in established automobile business in the middle west; management of business to go with investment to the right party. "D," care of MOTOR AGE.

WANTED.—Position on the road or manager of sales department for a concern who wants to "get the business." Thoroughly competent and thoroughly posted in automobile business. Address Practical Gasoline Expert, care MOTOR AGE.

CLEARANCE SALE—NEW AUTOMOBILES at less than factory prices.

F. O. B. St. Louis and Kansas City, consisting of following models:

- 2 "Model A" Touring Cars, Red and Green.
- 1 "Dos-a-Dos," Red.
- 1 0003 Black and Green Top Carriage.
- 1 05 Black and Green Surrey.
- 1 03 Black and Green Top Carriage.
- 1 02 Black and Red, without Top.

All new 1902 Models with latest improvements—heavy spokes, heavy chains, steam pumps, etc. We also have a number of second-hand Locomobiles, Oldsmobiles, Toledos and Haynes-Appersons at from \$350.00 up, which we will close out at prices that will sell them. Write for detailed price list and description at once if you want a bargain.

DAY AUTOMOBILE CO.,
4105-7 Olive St.,
St. Louis, Mo.

FOR SALE—Three Winton touring cars.
Two steam surreys.
Four Mobiles.
Three Locomobiles.
Three Oldsmobiles.
Three motor bikes.

Two Waverley electrics.

One Haynes-Apperson touring car.

See our new list with particulars.

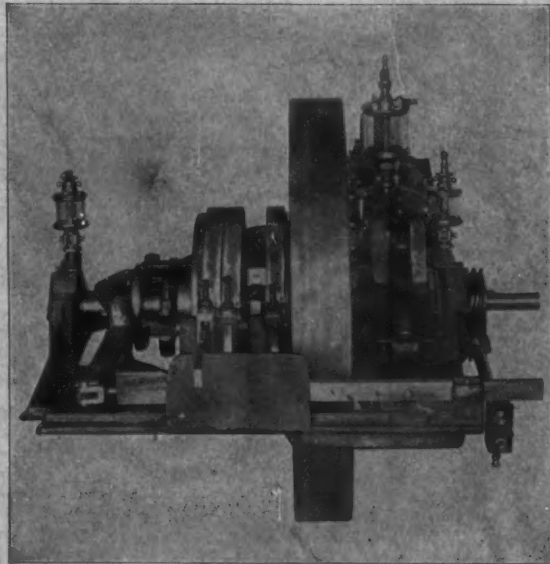
FISHER AUTOMOBILE Co., Indianapolis.

Are You "Safe" for 1903?

IF NOT we have the facilities for providing you with power equipments, either engines and transmissions combined or engines alone and are now canvassing the trade preparing for 1903 output. Our equipment is the highest attainment yet reached in the art of manufacturing light, high-powered, slow-speed engines—the kind most suited to the popular light vehicle of the day.

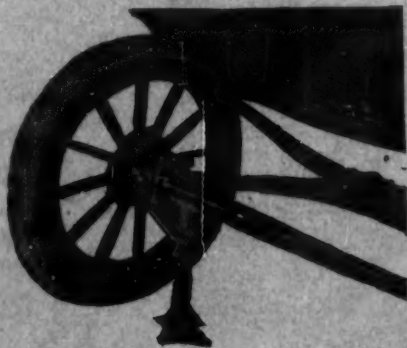
Quantity business is what we are looking for and we can, without question, save you months of experimental work. That's where the value comes in. We have paid for that already, and paid dearly. Our proposition on quantity orders will interest you.

The P. J. Dasey Co.,
 REFRS. SELLING AGENTS,
 19-21 La Salle St. - - Chicago, Ill.



An Automobile Necessity

THE "B. B." JACKS



*Will double the life of
 your tires ∴ Prices
 \$1.75 to \$4.00 each ∴
 Insist on having the "B
 B." Jacks.*



THE BRAY MFG. CO., 115 Broadway, N. Y.

AGENTS: Wallace Supply Co., 58 Fifth Ave., Chicago, Ill.
 A. L. Pyke, 1402 Pine St., St. Louis, Mo.

Factory: Newark, N. J.



Figuring the Profits

As the season draws to a close have you any

Profits to Figure?

Were you one of the wise dealers who bought good bicycles and, aided by their reputation, made money on them?

If not, do better hereafter. You are in the minority.

Ask some member of the great majority of dealers—all of our agents have made money this season—and he will advise you to select from this line of machines:

**Columbia, Crescent, Cleveland,
Monarch, Tribune, Rambler,
Imperial, or our line of Juveniles.**

We can give you Motor Bicycles of unquestioned speed, economy and durability. Hygienic Cushion Frames, Regas Spring Frames.

There is yet time to sell a lot of them.

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Western Sales Department, 497-501 Wells Street, Chicago, Illinois.

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